

**OVERSIGHT OF ARMY CORPS OF ENGINEERS
WATER MANAGEMENT IN THE APALACHICOLA-
CHATTAHOOCHEE-FLINT (ACF) AND THE ALA-
BAMA-COOSA-TALLAPOOSA (ACT) RIVER
SYSTEM**

HEARING
BEFORE THE
COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
ONE HUNDRED THIRTEENTH CONGRESS

FIRST SESSION

July 22, 2013

Printed for the use of the Committee on Environment and Public Works



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S. HRG. 113-745

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COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

ONE HUNDRED THIRTEENTH CONGRESS
FIRST SESSION

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**OVERSIGHT OF ARMY CORPS OF ENGINEERS
WATER MANAGEMENT IN THE APALACHI-
COLA-CHATTAHOOCHEE-FLINT (ACF) AND
THE ALABAMA-COOSA-TALLAPOOSA (ACT)
RIVER SYSTEM**

MONDAY, JULY 22, 2013

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 3 p.m. in room 406, Dirksen Senate Building, Hon. Jeff Sessions (co-chairman of the committee) presiding. Present: Senators Sessions and Boozman.

**OPENING STATEMENT OF HON. JEFF SESSIONS,
U.S SENATOR FROM THE STATE OF ALABAMA**

Senator SESSIONS. Good afternoon.

Welcome to today's Senate Environment and Public Works Committee hearing entitled, Oversight of the Army Corps of Engineers Water Management in the Apalachicola-Chattahoochee-Flint and Alabama-Coosa-Tallapoosa River Systems. Today, the Committee will hear from both Federal and State officials about the status of the Corps' efforts in the ACF and the ACT basins and impacts of those decisions.

I see my colleagues, Senators Isakson and Chambliss, who have been very alert to these issues. We have discussed it at length over a period of years. They have been very articulate in advocating for Georgia's position on this. Gentlemen, it is great to have you. I would be willing to have an opening statement from you. You have indicated you would like to submit statements for the record and I would be glad to receive them. That is your choice.

Thank you for attending. Indeed, as we have all discussed over a period of years, we really need a compact between the three States involved and that has been difficult to achieve to date.

[The prepared statements of Senators Isakson and Chambliss follow:]

**Joint Statement of U.S. Senators Saxby Chambliss & Johnny Isakson
Before the Committee on Environment and Public Works
July 22, 2013**

Thank you, Senator Sessions for accommodating us to make this statement today.

We appreciate the opportunity to speak to the Committee about this issue of great importance to the State of Georgia.

Jud Turner, the Director of Georgia's Environmental Protection Division will soon testify before this Committee. His testimony will give this Committee a clear understanding of Georgia's perspective on the management operations of the federal reservoirs on the ACT (Alabama-Coosa-Tallapoosa) and ACF (Apalachicola-Chattahoochee-Flint) river basins. He will also give the Members of this Committee and the other witnesses a clear understanding of how the State of Georgia has managed its water resources in order to maximize benefits for all users in the basins.

Water is one of our country's most precious resources and it has driven economic development decisions in all regions. These river basins in the states of Georgia, Alabama, and Florida are no different.

Traditionally, the Army Corps of Engineers has played a primary role in the determination of water resource management in Georgia, Florida and Alabama. However, continued litigation and activity in the federal courts have forced the Corps to sit idly by in this dispute, and yet their expertise, analysis, and decision making is essential to all sides finding a satisfactory resolution. It is unfortunate that constant and unnecessary intervention has only and will only further the Corps's resistance to finalize their plans. A copy of the last decision rendered by the Court of Appeals for the 11th Circuit is attached as exhibit A.

Right now, the Corps is studying the needs of our region and making a determination on the best path forward for all parties. In the case of the ACT basin, the Corps has notified us that they will not proceed with a water control manual update that identifies the full scope of the water resource needs of the State of Georgia - having delayed making a firm decision about GA's pending request for a reallocation of storage. However, the ACF basin's new water control manual will be considered in conjunction with Georgia's request for an allocation of storage to meet present and future needs.

The citizens of Georgia are not the only ones affected by this uncertainty. The citizens of Alabama and Florida, too, are not getting the benefits of up to date analysis and sound water management that could be and should be made on a regional basis.

Unfettered analysis and decision making by the Corps of Engineers is simply the best path forward for all stakeholders and constituents, as well as for the Corps itself.

It is our hope that this hearing will provide an opportunity for all parties to clear the air with respect to their intentions. Georgia has gone to great lengths to become a responsible custodian of water resources and has requested minimal operational changes to ensure the viability of its communities and users.

Congress has always sought to empower the states to be the principle negotiators of this issue as they have best knowledge of the needs of their respective states. Even with issues such as the one before us today, the Corps has traditionally taken its cues from the states. The Governors of Georgia, Alabama, and Florida have the ability to decide amongst themselves a suitable solution. Should the states get the opportunity to negotiate a tri-state water compact without Congressional intervention, we are confident all parties will find an acceptable answer to a question that has remained unanswered for nearly a generation.

Senator SESSIONS. The first panel will include Brigadier General Donald E. Jackson, Jr., Commander, South Atlantic Division, headquartered in Atlanta, Army Corps of Engineers and Hon. Jo-Ellen Darcy, Assistant Secretary of the Army, Civil Works.

General Jackson and Secretary Darcy, thank you both for taking time out of your schedules to be here. General Jackson, congratulations on your recent promotion to Brigadier General.

The second panel consists of State officials from three States that comprise the ACF and ACT basins, J. Brian Atkins, Division Director, Alabama Office of Water Resources; Judson H. Turner, Director, Environmental Protection Division, Georgia Department of Natural Resources; and Gregory M. Munson, Deputy Secretary for Water Policy and Ecosystem Restoration, Florida Department of Environmental Protection.

Given my interest in the hearing, Chairman Boxer and Ranking Member Vitter have graciously invited me to serve as Co-Chairman. We expect sparse attendance today as the Majority Leader has not scheduled any votes today, so many of our members will not be returning from the weekend in their States.

During consideration of the WRDA bill, there were many conversations and activities in this Committee and outside about concerns with the status of operations at Lake Lanier in the ACT system and Lake Allatoona in the ACT system. These challenging issues have been facing Alabama, Georgia and Florida for decades.

As Atlanta continues to consume increasing amounts of water from these shared and limited water resources, it is imperative that all stakeholders have a full understanding of the actions the Corps of Engineers has taken or plans to take in the years ahead in the region. Officials from all three States will give testimony about the impact of the Corps' actions on their constituents, industries and ecological resources.

I intend to ask Secretary Darcy and General Jackson questions to understand their plans for the ACF and the ACT basins and ask whether and how those plans follow the law, including the Water Supply Act of 1958.

Ultimately, a reasonable resolution of this matter should come through an InterState Water Compact agreed to by Governors. For that to happen, I believe the Corps must implement existing law and not take sides in discussions.

A primary focus of the hearing will be concerns about the Army Corps decisions at Lake Lanier and Lake Allatoona under the Water Supply Act of 1958. This important law "declared it to be the policy of Congress to recognize the primary responsibility of the States and local interests in developing water supplies for domestic, municipal, industrial and other purposes."

Section B of the Act authorized the Corps of Engineers to allocate a portion of Federal reservoirs for municipal and industrial water supply. In subsection (d) of the Act, however, Congress imposed a requirement that Congress approve any such allocation that would "seriously affect the purposes for which the project was authorized, surveyed, planned or constructed or which would involve major structural or operational changes."

Lake Lanier in the ACF and Lake Allatoona in the ACT impound rivers that otherwise flow downstream to communities in Alabama,

Florida and other parts of Georgia. These communities depend upon that steady flow of fresh water for their livelihoods and environmental quality. Even though the reservoirs were not built for Atlanta's water supply purposes, the Atlanta area municipalities have made increasing use of those two reservoirs for that purpose, local municipal and industrial water supply.

Just this year, the State of Georgia asked the Corps for a 280 percent increase in their contractually authorized storage allocation for Atlanta's water supply withdrawals from Lake Allatoona, almost three times more than their current allocation. In addition, this year Georgia has renewed its request for water storage at Lake Lanier, seeking as much as 30 percent of Lake Lanier's storage for direct withdrawals for Atlanta's water supply, where there is no current contract in place. This issue has raised questions from Florida, Apalachicola Bay and other areas.

How will the Corps handle these requests? That is an enormously important question for the entire ACF and ACT basins. Clearly, these significant demands from one area have a severe impact on downstream communities.

I would like to thank Chairman Boxer and Ranking Member Vitter for suggesting this hearing and their efforts on the issue. They desire that all of us work together where possible to reach common agreement. On May 16, Chairman Boxer and Ranking Member Vitter sent an important letter to Secretary Darcy correctly calling for an InterState Water Compact to address the ongoing water dispute in the region. They also correctly urged the Corps to serve as a neutral facilitator of a negotiated solution.

Regrettably, in my view, the Corps has too often sided with Atlanta by accommodating massive water withdrawals to the detriment of my constituents in Alabama, as well as communities in Florida and other parts of Georgia. Towns like Eufaula, Columbus, LaGrange, Dothan, Gadsden, Montgomery, and Apalachicola, are all impacted.

Around the time of the May 16 letter, Chairman Boxer committed to me that this Committee, which has jurisdiction over the Corps of Engineers, would hold a hearing on this topic. She has kept her word by allowing this hearing to occur today. I would say this is one of the few opportunities we have had, and the people in the region have had, to have witnesses from the Corps discuss these issues openly.

My understanding is that General Jackson will offer an opening statement on behalf of the Army Corps and General Jackson will primarily respond to questions about technical issues and Secretary Darcy will respond to broader policy issues.

Senator SESSIONS. Before we begin, I would like you to agree, if you would, to respond in writing within 30 days to a set of limited questions for the record that I would plan to submit following today's hearing.

Ms. DARCY. Yes, sir.

Senator SESSIONS. General Jackson.

General JACKSON. Yes, sir.

Senator SESSIONS. General Jackson, you can begin your opening statement. We thank you.

**STATEMENT OF BRIGADIER GENERAL DONALD E. JACKSON,
JR., COMMANDER, SOUTH ATLANTIC DIVISION, U.S. ARMY
CORPS OF ENGINEERS**

General JACKSON. Senator Sessions, as you mentioned, I am Brigadier General Donald Jackson, Commander of the U.S. Army Corps of Engineers South Atlantic Division. I am honored to testify before you today on the status of the Corps Water Management in the Apalachicola-Chattahoochee-Flint, ACF, and the Alabama-Coosa-Tallapoosa, ACT, river systems.

The ACF basin originates in northeast Georgia, crosses the Georgia-Alabama border into central Alabama and follows the State line south until it terminates in Apalachicola Bay, Florida. There are five Federal reservoirs and ten non-Federal reservoirs in the ACF system.

The ACT basin originates just north of the Tennessee-Georgia border extending to central north Georgia, crosses the Georgia-Alabama State line into north Alabama and continues across central and south Alabama before terminating in Mobile Bay. There are five Federal reservoirs and 11 non-Federal projects owned by Alabama Power Company in the ACT system.

Corps' Mobile District is currently updating the basin-wide Master Water Control Manuals for the ACT and the ACT River systems through an open and deliberative process that includes preparation of an environmental impact statement for each system and solicitation and consideration of comments from the public and all interested stakeholders.

The purpose of revising the manuals is to develop and implement updated, basin-wide operational schemes for the Federal projects in the two basins in accordance of their authorized purposes, in light of current conditions and applicable law.

Water control manuals assist Federal water managers in operating individual and multiple interdependent Corps reservoirs on the same river system consistent with applicable law. Generally, a water control manual will include technical, hydrologic, geographic, demographic, policy and other information.

The Corps uses these manuals to inform and guide its decisions on the management of waters in our reservoirs, which typically involve different operating regimes for times of high water, low water and normal conditions. The manuals contain water control plans for each of the reservoirs in the basin systems and specify how the various reservoirs will be operated as a system.

As part of the update process, the Corps is preparing an EIS for each of the two Federal systems and is soliciting and considering comments from the public and interested stakeholders. These actions will result in updated plans and manuals for both systems that are consistent with applicable law and take into account changes in basin hydrology and demands from years of growth and development, new/rehabilitated structural features, legal requirements and environmental issues.

In June 2011, the United States Court of Appeals for the Eleventh Circuit held that municipal and industrial water supply for the city of Atlanta, Georgia is an authorized purpose of the Lake Lanier project under the Rivers and Harbors Act of 1946 and remanded the matter to the Corps to determine the extent of its legal

authority to accommodate the State of Georgia's request in 2000 for additional water supply withdrawals at and below Lake Lanier.

On October 12, 2012, the Corps published a notice soliciting public comment on revising the scope of the EIS for the ACF water control manual update in light of these developments. The Corps published a revised Final Updated Scoping Report in March 2013, providing notice that the Corps is evaluating additional water supply alternatives within the scope of the ACF water control manual updated and EIS, including Georgia's updated request for water supply.

The Corps has not yet decided on a proposed mode of ACF system operations. The proposed operations will be identified in the draft water control manuals and EIS. These documents will be made available for public comment before any final decision is made on how the system should be operated.

The ACF Water Control Manual update and the EIS are being prepared in accordance with Corps regulations, the National Environmental Policy Act and all applicable law. As part of this effort, the Corps will consult with other Federal agencies as required, including consultation with the U.S. Fish and Wildlife Service.

The draft water control manuals and EIS will be released for public review and comment in accordance with NEPA and requirements in the Corps regulations. Similarly, the draft water control manuals and EIS will undergo quality control/quality assurance reviews to include agency technical review and independent external peer review.

The Corps is currently in the technical analysis stage of the ACF manual update. We expect to reach the next major milestone in the process about 2 years from now, when we file a draft EIS with the Environmental Protection Agency and release the draft water control manual and draft EIS for public review and comment.

The ACT Water Control Manual update and EIS are also being prepared in accordance with applicable law. The draft water control manual and EIS were released for public review and comment on March 1, 2013. The Corps is currently evaluating the public review and independent external peer review comments it received on these draft documents.

The draft Water Control Manual and EIS for the ACT reflect the existing water supply storage at Lake Allatoona pursuant to contracts entered under the Water Supply Act of 1958. Those contracts remain valid and the operations we are considering in the water control manual update process assume that withdrawals will continue as contemplated under these contracts.

In summary, the purpose of both the ACF and the ACT manual updates is to improve the information and guidance that the Corps uses to operate the Federal dams in these basins in accordance with applicable law. We operate the dams in each basin as a system and will continue to do so.

The updates will take into account changes in basin hydrology and demands from years of growth and development, new/rehabilitated structural features, legal requirements and environmental issues. Throughout this process, the Corps encourages the active participation of all stakeholders, and the Corps will carefully consider all comments received.

Senator Sessions and members of the Committee, this concludes my testimony. I look forward to continuing to work with the Committee on these very important issues and answering any questions you may have.

[The prepared statement of General Jackson follows:]

**DEPARTMENT OF THE ARMY
COMPLETE STATEMENT
OF
BRIGADIER GENERAL DONALD E. JACKSON
COMMANDER, SOUTH ATLANTIC DIVISION
U.S. ARMY CORPS OF ENGINEERS
BEFORE
THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
ON
*"Oversight of Army Corps of Engineers Water Management in the
Apalachicola-Chattahoochee-Flint (ACF) and the Alabama-Coosa-
Tallapoosa (ACT) River Systems."***

JULY 22, 2013

Madam Chairman and Members of the Committee:

I am Brigadier General Donald Jackson, Commander of the U.S. Army Corps of Engineers South Atlantic Division and am honored to testify before you today on the status of the Corps' Water Management in the Apalachicola-Chattahoochee-Flint (ACF) and Alabama-Coosa-Tallapoosa (ACT) River systems.

The Corps' Mobile District is currently updating the basin-wide Master Water Control Manuals for the ACF and ACT River systems through an open and deliberative process that includes preparation of an environmental impact statement (EIS) for each system, and solicitation and consideration of comments from the public and all interested stakeholders. The original basin-wide Water Control Manual for the ACF was completed in 1958 and for the ACT in 1951. Between 1990 and 2012, the Corps was involved in litigation that included challenges to the Corps' operation of federal reservoirs in both systems, against a background of disagreement among the state of Alabama, Florida, and Georgia regarding the allocation of waters within the basins. During the pendency of that litigation, the states agreed to Compacts for both basins that were approved by Congress in 1997, and which contemplated the states agreeing to formulas for apportioning the surface waters of the two basins. The Corps would have endeavored to update its operations, to the extent authorized by law, to implement such an agreement. After the states failed to reach agreement and the Compacts expired, the Secretary of the Army directed the Corps to proceed with updating the federal water control manuals for the ACF and ACT systems. The litigation concluded in 2012 without resolving the states' underlying disputes regarding the allocation of waters among the states, and without specific direction from the courts as to how the Corps should operate the ACF and ACT systems.

The purpose of revising the manuals is to develop and implement updated, basin-wide operational schemes for the federal projects in the two basins in accordance with their authorized purposes, in light of current conditions and applicable law. Water control manuals assist federal water managers in operating individual and multiple, interdependent Corps reservoirs on the same river system consistent with applicable law. Generally, a water control manual will include technical, hydrologic, geographic, demographic, policy, and other information. The Corps uses these manuals to inform and guide its decisions on the management of the waters in our reservoirs, which typically involve different operating regimes for times of high water, low water, and normal conditions. The manuals contain water control plans for each of the reservoirs in the basin system and specify how the various reservoirs will be operated as a system. The manuals also contain drought plans and zones to assist federal water managers in knowing when to reduce or increase reservoir releases, and how to ensure the safety of dams during extreme conditions such as floods.

As part of the update process, the Corps is preparing an EIS for each of the two federal systems, and is soliciting and considering comments from the public and interested stakeholders. These actions will result in updated plans and manuals for both systems that are consistent with applicable law and take into account changes in basin hydrology and demands from years of growth and development, new/rehabilitated structural features, legal requirements, and environmental issues.

The two river basins encompass all or part of 39 counties in Alabama, 8 counties in Florida, and 67 counties in Georgia.

The ACF basin (Figure 1) originates in north east Georgia, crosses the Georgia-Alabama border into central Alabama, and follows the state line south until it terminates in Apalachicola Bay, Florida. The basin covers 50 counties in Georgia, 10 counties in Alabama, and 8 counties in Florida, extending a distance of approximately 385 miles; the basin drains 19,600 square miles.

There are five federal reservoirs and ten non-federal reservoirs in the ACF system. At the headwaters of the system north of Atlanta are Buford Dam and Lake Sidney Lanier. Other federal reservoirs in the ACF system are West Point Lake Dam and West Point Lake; W.F. George Lock and Dam and W.F. George Lake; Lake George A. Andrews Lock and Dam and George A. Andrews Lake; and Jim Woodruff Lock and Dam and Lake Seminole.

The ACT basin (Figure 2) originates just north of the Tennessee-Georgia border, extends into central north Georgia, crosses the Georgia-Alabama state line into north Alabama, and continues across central and south Alabama before terminating in Mobile Bay. The basin covers 32 counties in Alabama, 18 counties in Georgia, and 2 counties in Tennessee, extending a distance of approximately 320 miles; the basin drains 22,800 square miles.

There are five federal reservoirs and eleven non-federal projects owned by Alabama Power Company in the ACT system. Federal reservoirs in the ACT system include Carters Lake and Reregulation Dam; Allatoona Dam and Lake; Robert F. Henry Lock and Dam and R.E. "Bob" Woodruff Lake; Millers Ferry Lock and Dam and William "Bill" Dannelly Lake; and Claiborne Lock and Dam and Claiborne Lake.

In June 2011 The United States Court of Appeals for the Eleventh Circuit held that municipal and industrial water supply for the city of Atlanta, Georgia, is an authorized purpose of the Lake Lanier project under the Rivers and Harbors Act of 1946, and remanded the matter to the Corps to determine the extent of its legal authority to accommodate the state of Georgia's request in 2000 for additional water supply withdrawals at and below Lake Lanier. In Re: MDL-1824 Tri-State Water Rights Litigation, 644 F.3d 1160 (11th Cir. 2011). In response to that decision, the United States filed a legal opinion of the Chief Counsel of the Corps with the Eleventh Circuit on June 25, 2012, regarding the authority of the Corps to accommodate water supply withdrawals at and below Lake Sidney Lanier under the Rivers and Harbors Act of 1946, Public Law No. 84-841 (July 30, 1956), and the Water Supply Act of 1958.

On October 12, 2012, the Corps published a notice soliciting public comment on revising the scope of the EIS for the ACF water control manual update in light of these developments. The Corps published a revised, Final Updated Scoping Report in March 2013, providing notice that the Corps is evaluating additional water supply alternatives within the scope of the ACF water control manual update and EIS, including Georgia's updated request for water supply. The Corps has not yet decided on a proposed mode of ACF system operations. The proposed operations will be identified in the draft water control manuals and EIS. Those documents will be made available for public comment before any final decision is made on how the system should be operated.

The ACF Water Control Manual update and EIS are being prepared in accordance with Corps regulations, National Environmental Policy Act (NEPA), and all applicable law. As part of this effort, the Corps will consult with other federal agencies as required, including consultation with the U.S. Fish and Wildlife Service for consideration of impacts to threatened and endangered species. The draft water control manuals and EIS will be released for public review and comment in accordance with NEPA and requirements in Corps regulations. Similarly, the draft water control manuals and EIS will undergo quality control/quality assurance reviews to include agency technical review and independent external peer review.

The Corps is currently in the technical analysis stage of the ACF manual update. We expect to reach the next major milestone in this process about two years from now, when we file a draft EIS with the Environmental Protection Agency (EPA) and release the draft water control manual and draft EIS for public review and comment.

The ACT Water Control Manual update and EIS are also being prepared in accordance with applicable law. The draft water control manual and EIS were released for public review and comment on March 1, 2013. The Corps is currently evaluating the public review and independent external peer review comments it received on these draft documents.

The draft Water Control Manual and EIS for the ACT reflect the existing water supply storage at Lake Allatoona pursuant to contracts entered into under the Water Supply Act of 1958; those contracts remain valid, and the operations we are considering in the water control manual update process assume that withdrawals will continue as contemplated under those contracts.

In summary, the purpose of both the ACF and the ACT manual updates is to improve the information and guidance that the Corps uses to operate the federal dams in these basins in accordance with applicable law. We operate the dams in each basin as a system, and will continue to do so. The updates will take into account changes in basin hydrology and demands from years of growth and development, new/rehabilitated structural features, legal requirements, and environmental issues. Throughout this process, the Corps encourages the active participation of all stakeholders, and the Corps will carefully consider all comments received.

Madam Chairman, Members of the Committee, this concludes my testimony. I look forward to continuing to work with the Committee on these very important issues and answering any questions you may have.

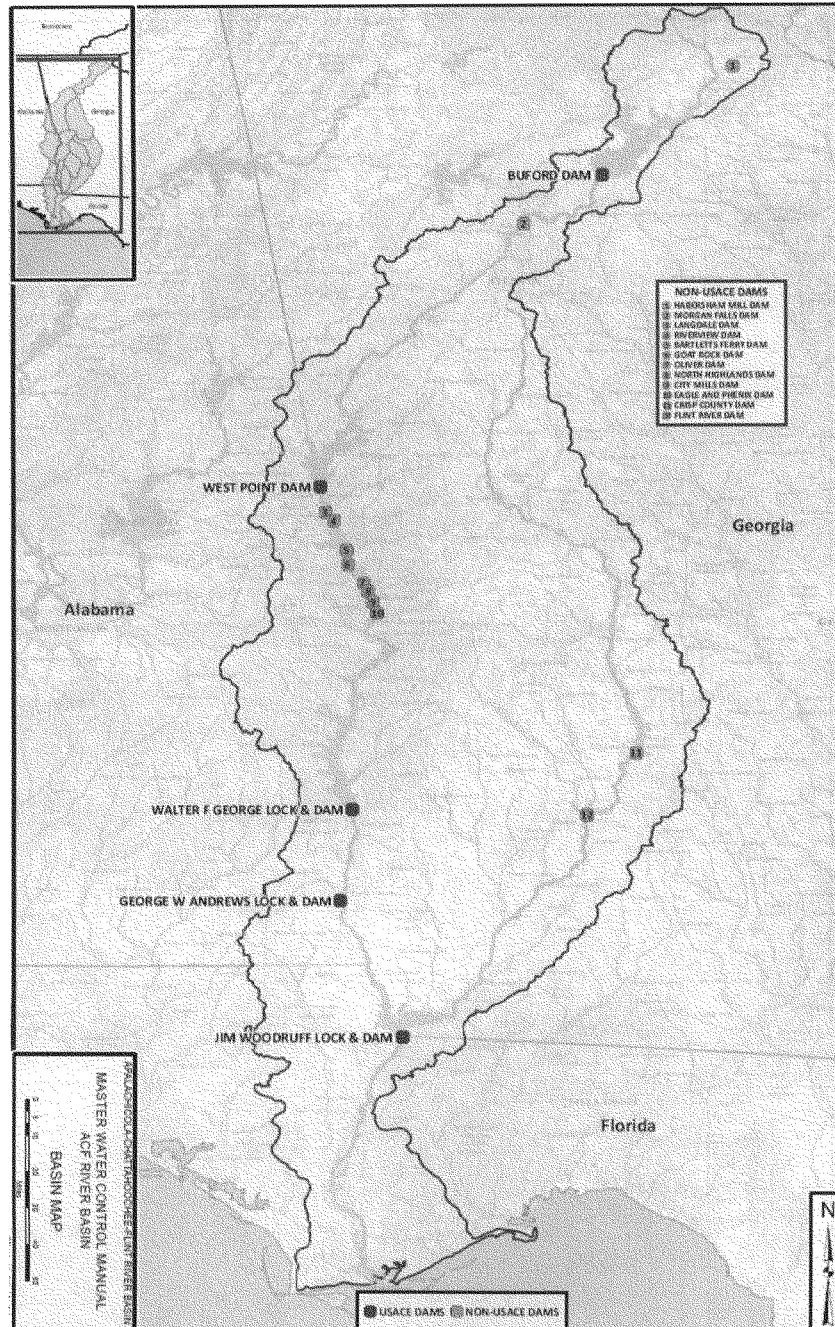


Figure 1. Apalachicola-Chattahoochee-Flint River Basin

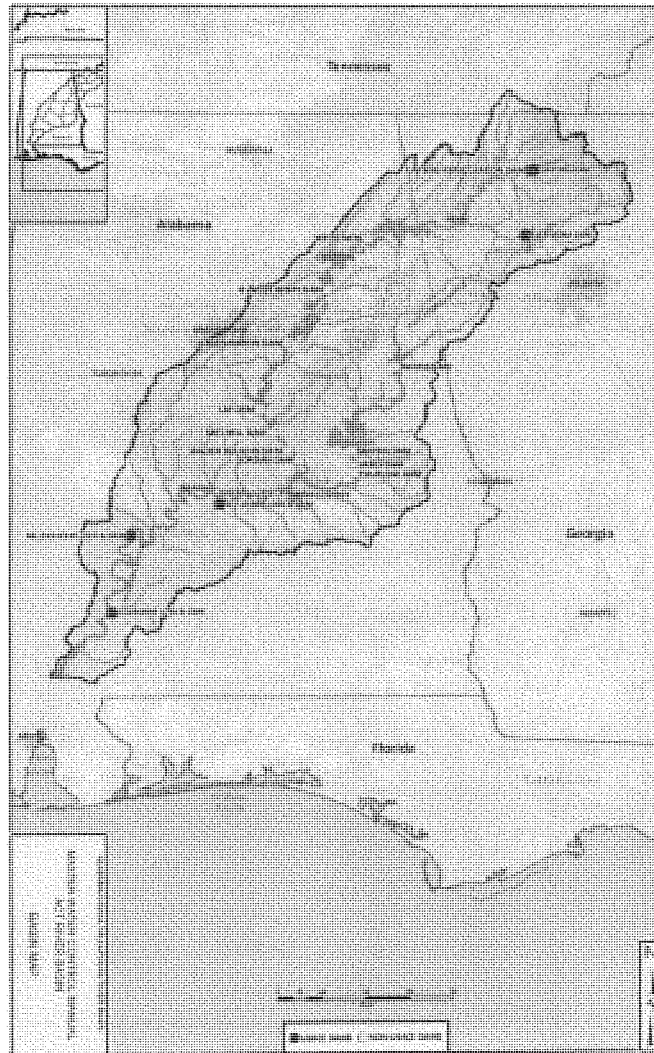


Figure 2. Alabama-Coosa-Tallapoosa River Basin

Questions for the Record Submitted by Sen. Jeff Sessions

Senate EPW Committee

*Hearing: "Oversight of Army Corps of Engineers Water Management in the
Apalachicola- Chattahoochee-Flint (ACF) and the Alabama-Coosa-Tallapoosa
(ACT) River Systems"*

July 22, 2013

**Questions for Brigadier General Ed Jackson, Jr., Commander, South Atlantic
Division, United States Army Corps of Engineers, and/or The Honorable Jo-Ellen
Darcy, Assistant Secretary of the Army (Civil Works)**

1. Is the Corps considering its policy on counting return flows with regard to usage of contractually allocated storage for water supply at federal reservoirs? If so, please describe the process by which the policy is being considered and state the estimated completion date for that process and whether the policy will be applied equally to all federal reservoirs.

Corps Response: The Assistant Secretary of the Army (Civil Works) (ASA(CW)) intends to address questions of return flow accounting policy after a national policy review that is underway but not yet complete. There is not currently an estimated completion date for this policy review process, and the nature and format of any subsequent policy decisions on return flows have not yet been determined.

2. Cobb County-Marietta Water Authority (CCMWA) entered into a contract in 1963 for a limited allocation of storage for water-supply usage at Lake Allatoona, Georgia. Please provide copies of all correspondence between the Corps and CCMWA pertaining to CCMWA's compliance with the contract limits.

Corps Response: Copies of the contract and pertinent correspondence from the Mobile District's records are attached.

3. During the hearing on July 22, 2013, General Jackson testified that, if a party with whom the Corps has contracted for a storage allocation for local water-supply usage exceeds its contractual amount, then the Corps contacts the party in writing to let the party know it has exceeded its contract amount. After such written notification is given, General Jackson stated that the Corps monitors compliance and works with the Department of Justice for any adjudication that needs to occur. With regard to CCMWA's contract for storage at Lake Allatoona, has the Corps contacted the Department of Justice about CCMWA's lack of compliance with its contract? If so, when?

Corps Response: As Brigadier General Jackson explained in his testimony, the Corps' recent practice at Lake Allatoona has been to monitor the use of storage in Lake Allatoona by entities with water supply storage contracts at that reservoir, and to notify

those entities when the Corps' storage accounting indicates that their available storage is low. In the past, after the Corps has notified CCMWA that its available storage was low or exhausted, the available storage has refilled. As of August 2013, the Corps' accounting indicates that CCMWA's withdrawals are not exceeding the available storage under the contract. The Department of the Army has not previously initiated any court proceedings with regard to the use of storage pursuant to CCMWA's contract. As BG Jackson indicated, any such actions would be undertaken in conjunction with the Department of Justice, which represents the Department of the Army in the federal courts, in light of specific facts and circumstances.

4. Please provide an analysis (similar to the one that the Corps prepared in November 2007) showing CCMWA's and Cartersville's usage of their contractually authorized storage amounts at Lake Allatoona and any exceedances of the authorized amounts from 2007 to the present.

Corps Response: See attached documents.

5. Please provide copies of any storage accounting spreadsheets pertaining to contracts concerning water-supply usage and/or water-supply storage allocation at Carters Lake or Lake Lanier for the full period of record.

Corps Response: The Corps does not maintain storage accounting spreadsheets pertaining to water supply usage or water supply storage at Carters Lake or Lake Lanier.

6. Has the Corps charged CCMWA for usage of storage at Lake Allatoona in excess of its contractually authorized amount? If so, please provide a schedule showing the amounts that CCMWA has been charged and state the basis for calculation of those amounts.

Corps Response: Consistent with the terms of the Water Supply Act of 1958, CCMWA is required to repay the costs allocated to CCMWA's water supply storage in Lake Allatoona, as set forth in the contract. The amount charged to CCMWA under the repayment schedule set forth in the contract is not a function of, and does not vary based on, the withdrawals that CCMWA actually makes.

7. CCMWA's 50-year contract for storage allocation at Lake Allatoona expires in the next few years. State the expiration date of the current contract, and state the process and timetable by which the Corps will consider a renewal of that contract and any terms.

Corps Response: CCMWA's October 10, 1963 storage contract contains a provision defining the period of contract as 50 years after the date of initial operation for water supply, or the life of the project, whichever was less.

Subsequently, Congress enacted Public Law 88-140 (Oct. 16, 1963), codified at 43

U.S.C. §§ 390c-390f, which provides that when State or local interests have "contributed to the Government, or . . . contracted to pay to the Government over a specified period of years, money equivalent to the cost of providing for them water storage space at Government-owned dams and reservoirs, constructed by the Corps of Engineers," those State or local interests may continue their use of such storage "during the existence of the facility."

8. The Corps has operated the Alabama-Coosa-Tallapoosa (ACT) River Basin for many years pursuant to a draft 1993 water control manual. Does the Corps acknowledge that it did not comply with the requirements of the National Environmental Policy Act prior to undertaking operations pursuant to that draft manual?

Corps Response: The Corps has not taken a final agency action to implement any updated ACT water control manuals. When the Corps takes a final agency action to implement updated ACT water control manuals, it will have complied with NEPA and all other applicable law.

9. On January 24, 2013, the Governor of Georgia submitted a request for a massive reallocation of storage at Lake Allatoona for local water supply. What are the process and the timetable that the Corps expects to follow in considering that request? Please provide a copy of any correspondence from Secretary Darcy and/or the Corps in response to that request.

Corps Response: The ASA(CW) responded to Governor of Georgia's request by letter dated April 29, 2013 (attached), explaining that the Corps is unable at this time to take final action on Georgia's request, and that a decision on the request would involve a reallocation study pursuant to the Water Supply Act or other specific legislative authority. At this time, the Corps has not developed a timetable for taking final action on Georgia's request.

10. When the applicants for a permit for the Hickory Log Creek Reservoir in Georgia applied for the permit from the Corps, the applicants represented that the withdrawal point for the discharges from the reservoir would be at the City of Canton's existing withdrawal point on the Etowah River above Lake Allatoona. The permit was issued on that basis. The permittees have now asked for permission to make those withdrawals directly from Lake Allatoona instead. What is the process by which the Corps will consider this request and what is the expected date of completion? Also, please confirm that the contemplated withdrawals from Lake Allatoona would require a storage allocation contract pursuant to the terms of the Water Supply Act of 1958. If you do not agree that such a storage allocation would be required, please explain why not.

Corps Response: As the ASA(CW) explained in a letter to the Governor of Georgia,

dated April 29, 2013, the relationship of prospective releases from Hickory Log Creek Reservoir to prospective water supply withdrawals from Lake Allatoona withdrawals may depend upon, and therefore cannot be clarified prior to, the conclusion of the ACT water control manual update process, an analysis of a potential reallocation of storage in Lake Allatoona for water supply, and any formal nationwide return flow crediting policy that may be adopted. Therefore, the Corps does not currently have a process in place or a timeline for analyzing the request, and has not reached any conclusions about whether the request will be accommodated or what such accommodation may entail.

11. Does the Corps agree that water supply was not one of the original congressionally authorized purposes of Lake Allatoona?

Corps Response: Water supply was not among the authorized purposes for Lake Allatoona discussed in House Document 76-674, which Congress adopted in the Rivers and Harbors Act of 1941, Pub. L. 77-228, § 3 (Aug. 18, 1941). Pursuant to the authority conferred by the Water Supply Act of 1958, the Corps has included storage for the purpose of water supply in Lake Allatoona.

12. The Corps has operated Lake Lanier to ensure that certain flow requirements in the Chattahoochee River at Peachtree Creek necessary to maintain water quality are satisfied. What is the statutory basis for the Corps' operation of Lake Lanier to meet that consideration? Does the Corps have the authority to operate Lake Lanier and other federal projects in the Apalachicola-Chattahoochee-Flint (ACF) River Basin to meet water quality needs further downstream in the Chattahoochee River below Peachtree Creek?

Corps Response: The Corps operates Lake Lanier to ensure adequate flows for water supply withdrawals at Atlanta, consistent with Congressional intent in the River and Harbor Act of 1946 (1946 RHA), as recognized in the Eleventh Circuit's decision in the case *In re MDL-1824 Tri-State Water Rights Litigation*, 644 F.3d 1160 (11th Cir. 2011), and in the Chief Counsel's legal opinion of June 25, 2012. The adequacy of authorized flows for water supply withdrawals at Atlanta includes consideration of water quality at Peachtree Creek, immediately downstream of the Atlanta withdrawal intakes. The River and Harbor Act of 1962 authorized the construction and operation of the West Point project in accordance with plans which provided for low flow augmentation of 670 cfs at the base of West Point Dam, for water quality. In addition, the Clean Water Act provides the Corps discretionary authority to make other operational adjustments for water quality concerns in the ACF system. However, the Corps is not required to meet specific state water quality flow requirements in the ACF, and any releases for water quality are made in conjunction with releases needed to meet other authorized purposes.

13. Does the Corps agree that direct withdrawals for water supply was not one of the original congressionally authorized purposes of Lake Lanier?

Corps Response: The Corps agrees that 1946 RHA, which authorized the construction and operation of the ACF system of improvements, envisioned that releases would be made from Buford Dam to support water supply needs downstream at Atlanta, and did not specifically envision withdrawals from the reservoir that became Lake Lanier. However, during the construction of the Buford Project, two municipal entities, the City of Buford and the City of Gainesville, were required to relocate their existing water supply facilities at the project site. As part of the Fifth Amendment compensation for these necessary relocations, the Corps entered into agreements authorizing those entities to continue to withdraw water supply directly from the reservoir that became Lake Lanier. In addition, in Pub. L. No. 84-841, 60 Stat. 634 (July 30, 1956), Congress expressly modified the Buford project authorized in the 1946 RHA to authorize the Secretary of the Army to enter into an agreement for water supply withdrawals from Lake Lanier by Gwinnett County, Georgia.

14. Has the Corps ever approved reallocation under the Water Supply Act of 1958 of 29% or more of a conservation storage pool at a reservoir it operates without congressional approval? If so, please state each such instance, including the name of the reservoir, the size of the reservoir's conservation storage pool, the size of the reallocation, the entity to which the reallocation was made, and the date of the reallocation.

Corps Response: Yes. An analysis of Corps data* for this request confirms that a number of instances (listed below) involved circumstances where the percentage of storage reallocated to water supply exceeded 29% of the pre-existing conservation storage pool at a reservoir.

<u>Project Name**</u>	<u>Conservation Pool Size (acre feet)***</u>	<u>Storage Reallocated to Water Supply (acre feet)</u>	<u>User</u>	<u>Date(s)</u>
COWANESQUE DAM	30,059	25600 (574%)****	Susquehanna RBC	1986
CURWENSVILLE DAM	7,641	5360 (70%)	Susquehanna RBC	1994
POMONA DAM	64,208	32500 (51%)	State of Kansas	1995
MELVERN DAM	152,051	50000 (33%)	State of Kansas	1994
WACO LAKE	205,768	47526 (30%)****	Brazos River Authority	1984

*This analysis is not definitive, but is based on information that could be pulled together in the timeframe necessary to provide a timely response to this request. The Corps does not keep a standard database containing information in this form. The figures are

believed to represent most of the cases that exceed 29%.

****Source of reallocation data (name, reallocation amount, user, and date):** "2011 M&I Water Supply Database," U.S. Army Corps of Engineers, (Institute for Water Resources) 2012. IWR Report 2012-R-02.

*****Source of conservation pool size – Corps unpublished.**

********In cases where the reallocation was from the flood pool, the percentage reflects the reallocation compared to the size of the conservation pool prior to the reallocation (that is, the denominator in the fraction is the conservation pool size minus the reallocation size). The post-reallocation ratio of water supply storage to overall conservation storage in such instances may be less than 29%.

15. What are the five largest reallocations under the Water Supply Act of 1958 ever approved by the Corps without congressional approval? For each, please state the name of the reservoir, the size of the reservoir's conservation storage pool, the size of the reallocation, the entity to which the reallocation was made, and the date of the reallocation.

Corps Response: The five largest reallocations of storage, in acre-feet, that have been effected by the Department of the Army pursuant to the Water Supply Act of 1958 without specific congressional approval are presented in the following table:

<u>Project Name*</u>	<u>Conservation Pool Size (acre feet)**</u>	<u>Reallocation (acre feet)</u>	<u>User</u>	<u>Date(s)</u>
Denison Dam (Lake Texoma), OK & TX***	2,371,383	124,303 (total, 5 actions pre WRDA 1986) (21,300; 16,400; 450; 2,054; 84,099)	City of Denison, TX; TX Power & Light; Red River Authority of TX; N Texas MWD	1953-1985
Melvorn Lake, KS	152,051	50,000	State of Kansas	1994
Stockton Lake, MO	874,887	50,000	City of Springfield, MO	1992
Waco, TX	205,768	47,526	Brazos River Authority	1984
Tuttle Creek Lake, KS	280,137	42,000 (total, 3 actions) (27,500; 8,650; 13,850)	Kansas Water Office	1990; 1994; 1996

***Source of reallocation data (name, reallocation amount, user, and date):** "2011 M&I

Water Supply Database," U.S. Army Corps of Engineers, (Institute for Water Resources) 2012. IWR Report 2012-R-02.

**Source of conservation pool size – Corps unpublished.

***(Note: Sec 838 of WRDA 1986 authorized an additional 300,000 acre feet for municipal, industrial, and agricultural water users (150,000 each for Texas and Oklahoma). Subsequently, eight reallocation agreements amounting to 174,391 acre feet have been executed between 1992 and 2011).

16. Has the Corps ever concluded that a requested reallocation pursuant to the Water Supply Act of 1958 required congressional approval because it would involve serious effects on authorized project purposes? If so, please state each such instance, including the name of the reservoir, the size of the reservoir's conservations storage pool, the size of the requested reallocation, the entity requesting the reallocation be made, and a description of the manner in which the requested reallocation would seriously affect authorized project purposes.

Corps Response: The Corps is aware of only one instance in which the Department of the Army has formally concluded that a particular request for water supply storage pursuant to the Water Supply Act required congressional approval because granting the request would seriously affect authorized project purposes. The Eleventh Circuit subsequently held that this conclusion was based on a clear error of law, and set it aside.

In 2002, the Acting ASA(CW) denied the State of Georgia's request for withdrawals of 297 million gallons per day (mgd) from Lake Lanier, and for releases from Buford Dam sufficient to ensure downstream flows of 1381 cubic feet per second (cfs) at Atlanta, on the basis of a legal opinion concluding that the requested actions would seriously affect authorized purposes, and also involve major operational change. The Corps' preliminary analysis indicated that granting Georgia's request would involve a reallocation of 370,930 acre-feet of storage, comprising 34 percent of conservation storage in Lake Lanier (1,087,600 acre-feet), and would reduce annual hydropower benefits by 30 percent. The legal analysis further assumed that water supply was not an authorized purpose of the Buford Dam project.

The Army's decision to deny Georgia's request was set aside by the U.S. Court of Appeals for the Eleventh Circuit in the case *In re MDL-1824 Tri-State Water Rights Litigation*, 644 F.3d 1160 (11th Cir. 2011), which directed the Corps on remand to reconsider the extent of its authority to accommodate Georgia's request. In 2012, the Corps Chief Counsel issued an opinion on remand concluding that the Corps has the legal authority under the 1946 RHA, the Water Supply Act, and Pub. L. No. 84-841 to accommodate Georgia's request.

17. Has the Corps ever concluded that a requested reallocation pursuant to the Water Supply Act of 1958 required congressional approval because it would

involve major operational changes? If so, please state each such instance, including the name of the reservoir, the size of the reservoir's conservations storage pool, the size of the requested reallocation, the entity requesting the reallocation be made, and a description of the manner in which the requested reallocation would involve major operational changes.

Corps Response: The Corps is aware of only one instance in which the Department of the Army has formally concluded that a particular request for water supply storage pursuant to the Water Supply Act required congressional approval because granting the request would involve major operational changes. The Eleventh Circuit subsequently held that this conclusion was based on a clear error of law, and set it aside.

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18. Has the Corps ever concluded that a requested reallocation pursuant to the Water Supply Act of 1958 required congressional approval because it would involve major structural changes? If so, please state each such instance, including the name of the reservoir, the size of the reservoir's conservations storage pool, the size of the requested reallocation, the entity requesting the reallocation be made, and a description of the manner in which the requested reallocation would involve major structural changes.

Corps Response: The Corps is unaware of any instance in which the Department of the Army has formally concluded that a particular request for water supply storage pursuant to the Water Supply Act required congressional approval because granting the request would involve major structural changes.

19. Please provide a statement of the amount of the charges assessed by the Corps to Gwinnett County for usage of storage for water-supply purposes

and/or for water-supply withdrawals at Lake Lanier since 1990 and provide a summary of the basis for calculation of those charges.

Corps Response: Gwinnett County has continued to submit payments to the Corps for the usage of storage in Lake Lanier pursuant to the terms of a water supply storage contract that expired in 1990 and has never been renewed. The Corps has a record of the payments received since 1997, but was not able to locate any records of the amount of payments made from 1990-1997.

It is the Corps understanding that Gwinnett County calculates its payments pursuant to the terms of the expired agreement in the following manner:

7/2/73-6/30/85: \$5.40 per million gallons
 7/1/85-2/28/99: \$9.74 per million gallons
 3/1/00- Current: \$18.80 per million gallons

A copy of the records from 1997-2013 was put into a spreadsheet in response to this question. Please see the attached document.

20. What is the status of the Corps' consideration of the application for a permit for the proposed Glades Reservoir in Georgia? What is the expected date of completion of the Corps' consideration of that application?

Corps Response: The Savannah District of the Corps is currently preparing a Draft Environmental Impact Statement (DEIS) to support its evaluation of the Clean Water Act Section 404 permit application for the Glades Reservoir Project. The DEIS is scheduled to be completed in late 2013. The Final EIS is scheduled to be completed during mid 2014, with the Record of Decision on the Section 404 permit and EIS completed by late 2014.

21. What is the status of the Corps' consideration of the application for a permit for the proposed Richland Creek Reservoir in Georgia? What is the expected date of completion of the Corps' consideration of that application?

Corps Response: On September 21, 2007, the Savannah District received an application for the required Department of the Army individual permit pursuant to Section 404 of the Clean Water Act. A Joint Public Notice was issued on October 10, 2007. The following issues remain to be resolved: (1) USEPA's comments on the project; (2) modeling of the Alabama-Coosa-Tallapoosa River Basin (ACT Basin) to address potential cumulative impacts in the basin; (3) recent modification to population projections for Paulding County; and (4) adequacy of the proposed mitigation plan. Upon resolution of these issues, the District will prepare an Environmental Assessment. This document will then be used to determine whether an EIS is required, or if the District may proceed to a permit decision.

22. Please state how many turbines are operational at Carters Lake, Lake

Allatoona, and Lake Lanier. If any turbines are not operational at any of those reservoirs, please provide details about when and why they became inoperable as well as the plan as to when they will become operable. Please provide the historical information for the full period of record about how many hours per day hydroelectric power was generated through each operational turbine.

Corps Response: Allatoona has three turbines, Buford/Lake Lanier has three turbines, and Carters has four turbines. At this time only Allatoona Unit 1 is out of service due to transformer failure. This unit has been out of service since February 2007. A major project is currently underway to replace transformers, station service, and the switchyard at Allatoona and Unit 1 is scheduled to return to service in March 2014. Between March and September 2014 both main units will intermittently be removed from service for connection to newly installed switchyard components.

The historical information requested can only be determined by examining the hard copy of each plant's daily log sheet. However, the Corps maintains electronic records of monthly generation for each unit at these plants dating back to October 1999. This data was used to determine the approximate daily generation of each unit at the three plants.

The attached spreadsheet shows average daily generation for these plants from October 1999 to July 2013.

23. Please provide available data concerning actual withdrawals and discharges (on a monthly or daily time step) for all entities that withdraw and/or discharge at Carters Lake, Lake Allatoona, and Lake Lanier.

Corps Response: See attached documents.

24. The Corps is currently updating the master manuals for the ACT Basin and ACF Basin. Please describe the steps left to be taken in the update process for each basin and the estimated date of completion for each step.

Corps Response: The Corps is updating the water control plans and manuals for the ACF Basin in order to improve operations for authorized purposes to reflect changed conditions since the manuals were last developed. The EIS will also consider, along with operations for all authorized purposes, an expanded range of water supply alternatives associated with the Buford Dam/Lake Lanier project, including current levels of water supply withdrawals and additional amounts that Georgia has requested from Lake Lanier and downstream at Atlanta. A preliminary Draft Water Control Manual and EIS are in development and will be subjected to agency and independent technical review. This process will include coordination and consultation with all applicable resource agencies. The Corps intends to file the draft EIS with the USEPA for public review and comment and to conduct public meetings in 2015. All public comments will be considered. Final documents are expected to be completed in 2016, followed by a Record of Decision and final approval in 2016.

The ACT Basin draft EIS and Water Control Manual underwent public review and comment from March 1 through May 31, 2013. The Corps is currently addressing the comments received from the public. After addressing all public comments, the draft documents are expected to be completed and filed with the USEPA in 2013. The signing of the Record of Decision is expected in 2013 with final approval expected at the end of 2013.

25. We have heard some questions among various stakeholders about the hydraulic models used by the Corps. It may be helpful for a briefing by Corps' river hydraulic modeling scientists and engineers. Would the Corps be willing to provide a briefing for congressional staff and other stakeholders on this topic?

Corps Response: The Corps would be happy to provide briefings on this topic. The Corps has previously presented this information to stakeholder groups, and regularly makes available extensive data and modeling information on the Mobile District website. Specific requests for information or briefings should be forwarded to the appropriate Corps offices for consideration.

26. Why does the Corps presently exclude Georgia consumption from its calculation of Basin Inflow in the ACF Basin?

Corps Response: The Corps Basin Inflow computation does not exclude consumption from Georgia or Alabama. The Corps uses reliable information on flow data, and those data include all losses due to consumption from both states as well as evaporation losses.

27. Does the Corps believe Georgia consumption has no impact on the amount of water (a) actually flowing into federal reservoirs in the ACF Basin?, and (b) available for release to downstream States? Has the Corps prepared any projections of future impacts on Corps operations likely to result from increased consumption? If yes, provide specific detail. If no, why not? Has the Corps determined the maximum amount of water Georgia can consume without adversely affecting federal reservoirs? If yes, provide specific detail. If no, why not?

Corps Response: Any net consumption of water above a federal dam project will impact the water flowing into that reservoir. The amount of water available for release downstream, and the impacts on downstream reservoirs, are subject to multiple factors, including the quantity of basin inflows, available storage, and other operational considerations. For this reason, it is not possible to determine a precise amount of water that could be consumed without adversely affecting federal reservoirs.

The Biological Opinion for the May 2012 Revised Interim Operating Plan (RIOP) included analysis resulting from projected 2017 basin-wide water consumption. With regard to additional water supply withdrawals that Georgia has requested from Lake

Lanier and downstream at Atlanta, the June 25, 2012 Chief Counsel legal opinion and its underlying technical analysis concluded that the Corps has the capacity to accommodate those withdrawals, without "seriously affecting," within the meaning of the Water Supply Act, authorized project purposes of the ACF system.

28. Does the Corps agree with the U.S. Fish and Wildlife Service's assessment that projected increases in Georgia's consumptive uses will increase the frequency and duration of low flows in Florida's Apalachicola River. If not, will those flows be made up from storage? If storage will be used to make up those flows, how will storage (and the other authorized purposes) be affected?

Corps Response: The Corps acknowledges that there have been more periods of low flows throughout the ACF system over the last decade or so than in the previous decades for which data are available, and that it is likely that increased consumption, including irrigation on the Flint River, has contributed to the frequency and duration of low flows on the Apalachicola River. However, consumption is not the sole cause of the lower flows; hydrology has also been a major contributor to the reduced in-flows, since we have seen more frequent and severe droughts in the past decade than in the preceding decades.

The EIS for the ongoing ACF water control manual update process will evaluate several alternatives involving the use of storage in Lake Lanier to accommodate varying amounts of water supply withdrawals from the reservoir and downstream at Atlanta. Comparison of these alternatives may provide additional information regarding the impact of water supply use at Lake Lanier on flows throughout the ACF system. For each alternative considered, the Corps will evaluate the effects of the proposed operations on authorized purposes.

29. What initiatives are underway to encourage Georgia to reduce its demands on the federal reservoir system? Is the Corps encouraging Georgia to maximize its conservation potential? If yes, provide specific detail. If not, why not? Is the Corps encouraging Georgia to meet its future water needs from alternative supplies (other than the Chattahoochee)? If yes, provide specific detail. If not, why not?

Corps Response: The Corps does not have the authority to mandate water conservation measures on the state of Georgia. Allocation of waters for consumptive use is a responsibility of the States. In the Water Supply Act, Congress "recognize[d] the primary responsibilities of the States and local interests in developing water supplies," and authorized the Corps to "participate and cooperate with States and local interests in developing such water supplies in connection with the construction, maintenance, and operation of Federal navigation, flood control, irrigation, or multiple purpose projects." Accordingly, the Corps is considering Georgia's request for water supply storage from Lake Lanier.

30. Would the Corps benefit from the States resolving their differences and

dividing the waters of the ACF Basin among them? If yes, why? If no, why not? Wouldn't it be easier to manage the federal reservoirs if the Corps knew what each States' maximum consumptive use could be?

Corps Response: The Corps' responsibility is to operate the federal ACF system for its authorized purposes, in accordance with federal law. In updating the ACF water control manuals, the Corps encourages the active participation of all stakeholders, and will take into account all comments received. In the event that the States reach an agreement on the allocation of waters in the ACF basin, the Corps would endeavor, within the limits of its legal authority, to adjust the operation of the ACF system.

Senator SESSIONS. Thank you, General Jackson.

Secretary Darcy.

Ms. DARCY. Senator, I do not have a prepared statement but I am happy to be here to support General Jackson and answer any questions you have about the update for the manuals.

Senator SESSIONS. Let's look at a few of the fundamentals. You cite, General Jackson, that you assume the contracts remain in force. I believe you indicated that the flow from Lake Allatoona would continue. Is that correct?

General JACKSON. The water control manual update for the ACT only recognizes existing contracts in effect today and do not reflect any increased requests for water withdrawals by the State of Georgia out of Lake Allatoona.

Senator SESSIONS. Are you saying that the established amount is the amount in that contract or the amount actually being withdrawn now?

General JACKSON. Sir, we recognize the amount that is in the contract.

Senator SESSIONS. The way this historically arose I have discovered is that Congress was concerned about being in a position of financing water supply projects for cities, counties and areas. The policy was clear that Congress would not pay for developing peoples' water systems. In cities like Birmingham, they pay for their own.

This is a chart that shows a quote from Mayor Hartsfield, the famous Atlanta Mayor, back in 1948 about these projects and whether or not he would contribute and whether or not he wanted it to be done so that Atlanta could participate in getting water from it. He said, "The city of Atlanta has many sources of potential water supply in north Georgia. Certainly in view of other possible sources of Atlanta's future water, we should not be asked to contribute funds to a dam which the Army engineers have said is vitally necessary for navigation and flood control on the balance of the river."

It would seem to me, General Jackson, that Atlanta's Mayor at the time said they would choose not to participate in this and did not desire any water from the system. Is that the way you would understand that quote?

General JACKSON. Sir, I apologize. I am not familiar with that quote. I do not have a response for that.

Senator SESSIONS. It is pretty obvious to me you need to be thinking about it as you go through this process.

Gerald Ford was a Member of Congress about this time. He was a frugal man and he raised this question at the hearing: "Is it not conceivable in the future that the city of Atlanta will make demands on the Corps for certain water at certain times because of the needs of Atlanta when at the same time, it will be for the best interests of the overall picture, power, navigation, flood control, to retain the water in the reservoir?" Are you familiar with that question?

General JACKSON. No, sir, I am not.

Senator SESSIONS. Colonel Potter replied, "We would have to come back, I believe, to Congress to alter the authorization of that project were it a major diversion of the water. We take a very dim

view of changing a project to the subsequent needs without Congress having a hand in it.'

That sounds like pretty good policy, does it not? If Congress authorizes a dam for a series of purposes, the Corps of Engineers does not have the authority to alter that purpose, does it?

General JACKSON. That is correct, sir. We follow the authorized purpose of our projects as directed by Congress and the authorizing legislation.

Senator SESSIONS. That is what we are talking about. We have some concern about that with regard to Allatoona Reservoir. First, let me ask, you support, I suppose the goal, I think most of us do, that there be a compact between the Governors? That is what Chairman Boxer and Ranking Member Vitter said in their letter to you. I think most of us advocate that. Is it your belief that is the best way to fix the problem?

Ms. DARCY. Yes, Senator, that has been the longstanding view of the Army, that a compact between the three impacted States would be the best resolution for this issue.

Senator SESSIONS. With regard to Cobb County and the Lake Allatoona Reservoir, there is a contract, is there not, executed in 1963 that allows, in effect, 4.6 percent of the reservoir to be utilized for water resources for Cobb County?

General JACKSON. Senator, there is a contract in place. I am not familiar with the exact numbers of the withdrawal but there is a contract in place.

Senator SESSIONS. You need to know that. It was allocated just over 13,000 acre feet in that contract, is that correct? Do you know?

General JACKSON. Sir, I apologize. I am not familiar with the exact numbers of the withdrawal amount.

Senator SESSIONS. That is about what it is as I read it. Now they are proposing a new contract of 14 percent, three times that amount. Are you aware of that?

General JACKSON. Sir, I am aware of a request submitted to Ms. Darcy by Governor Deal for increased water withdrawals at Lake Allatoona.

Senator SESSIONS. Those increased withdrawals could effectively amount to reallocating the purposes of that by the reservoir from its original constructed purpose by the Federal Government, could it not?

General JACKSON. Sir, we are in the process right now, as I mentioned before, of completing the water control manual for the ACT system based on the authorized purposes as currently outlined and taking only into account those storage agreements currently in effect. That is what we have agreed to do and that is how we are proceeding with the water control manual update.

Senator SESSIONS. Fill me in on that a little bit. You are redoing your manuals consistently with the contract that is in place, is that what you're saying?

General JACKSON. That is correct, sir.

Senator SESSIONS. That would be the 4.6 percent of the reservoir or whatever is in that contract?

General JACKSON. Yes, Senator, whatever is reflected in the current contract.

Senator SESSIONS. Secretary Darcy, are you aware that periodically over the years Congress has altered these kinds of contracts through explicit legislative action if they were to be changed?

Ms. DARCY. Yes, it would take an act of Congress in order to change the project purpose.

Senator SESSIONS. I know if our Governors can reach an agreement, I am sure that our Senators would reach an agreement. We could pass such legislation necessary to fix the disputes that we have.

Are you aware, General Jackson, that Cobb County is drawing far more water today from that reservoir than is allowed under the contract?

General JACKSON. Sir, we monitor withdrawals from Lake Allatoona in support of the water supply contracts on a routine basis. We expect all users who are abiding by the water supply contracts to follow those water supply contracts. When we find out they are exceeded, we notify the individuals in writing and let them know they have exceeded their water supply contracts. We continue to monitor that and work with the Department of Justice for any adjudication that needs to occur.

Senator SESSIONS. You acknowledge that according to Corps policy, the amount of water taken out by Cobb County far exceeds the contract amount?

General JACKSON. Sir, I am aware that they have been exceeded in the past but I am aware currently they are within the terms of their contract.

Senator SESSIONS. You believe they are within the terms of the contract?

General JACKSON. That is my understanding at present, yes, sir.

Senator SESSIONS. Are you counting return flow downstream or not in that evaluation?

General JACKSON. We don't attribute return flows giving them credit for the portion of the contract they have. We do monitor return flows but only as general basin inflows inside a water-controlled basin. The folks of Cobb County do not get credit for return flows into Lake Allatoona as a result of their contract.

Senator SESSIONS. That is my understanding of Corps policy nationwide.

General JACKSON. Yes, sir.

Senator SESSIONS. That is an important question.

We have a pretty big difference of opinion. I hope you are correct in saying Cobb County is operating consistently at their contract level, but I have been informed they are well above the contract level. I was informed that during the 2007 drought, by the Corps' own calculation, Cobb County was using three times more storage place for water at Lake Allatoona than the contract allowed. It was allocated just over 13,000 acre feet and it was using over 39,000 acre feet. At 39,000 acre feet, that is 14 percent of the Lake's conservation pool and the Corps had to cut back on hydropower generation to protect that supply. Are you aware of that?

General JACKSON. Senator, as I mentioned earlier, I am aware of previous infractions and we have notified the contract holder in writing of its excedences and we continue to monitor on a daily

basis what is taken in and out of the lake as a result of those contracts.

Senator SESSIONS. Would you acknowledge that at a time of drought, as occurred in 2007, exceeding substantially the amount of withdrawals would be particularly problematic for downstream individuals depending on that water flow?

General JACKSON. I would agree that in periods of drought, there is significant impact up and down the basin to all users. Any exceedences would certainly cause additional problems for users downstream.

Senator SESSIONS. I would agree. If you make an operational change in that water supply flow with Allatoona, it would be require congressional approval, would you agree?

General JACKSON. As laid out for us in the Water Supply Act of 1958, any operational change we make as part of our water control manual update would remain, at this time, under the delegated discretion of the Chief of Engineers, assuming it does not include a major structural change, a major change in operation or a significant impact to the operational purposes for any of the authorized purposes for that reservoir.

Senator SESSIONS. Would you repeat that? I am not sure I fully got that. Will you repeat what you said? I am not sure I fully understood that.

General JACKSON. You asked me about a reallocation of water?

Senator SESSIONS. Yes.

General JACKSON. What I referred to is in the water control manual update we are currently doing, I am not sure. If you could rephrase the question, I want to make sure I answer your question correctly.

Senator SESSIONS. I am not sure I can do that. Actually, I was asking you if there was a major operational change in water withdrawal by Cobb County or anyone else would it require congressional approval? The Corps of Engineers is not empowered to make those kinds of policy decisions.

General JACKSON. Any major changes or effects that fundamentally depart from the congressional intent of that particular project would require congressional authorization.

Senator SESSIONS. The Water Supply Act says, among other things, that Congress must approve a major operational change, I believe is the phrase.

I am informed that Cobb County, by its own admission, has exceeded for decades the contractual amount of water storage and they basically claim that their return of the water counts and therefore, they are entitled to do it and intend to keep on doing it. This has been going on for quite a long time, decades, and the Corps had done nothing about it. This is causing some unease downstream. That is our problem. Do you dispute that they have drawn more than the Corps policy allows consistently?

General JACKSON. All I can do is refer to my previous comment. I have been made aware of previous exceedences which we have addressed in written correspondence with Cobb County.

Senator SESSIONS. When you get back to Atlanta, you should be able to ascertain these amounts of flows and withdrawals. Would

you submit a report to us setting forth how much has been withdrawn from that reservoir since the contract was in force?

General JACKSON. Yes, Senator.

Senator SESSIONS. One of the things that concerns us is when it appears contracts are not being enforced, the Corps may be overlooking its deep fundamental responsibility to deal with the multi-State problem that has impacts throughout the region. Therefore, a Corps agreement with one city, county or State has to reflect the impact it would have on the other areas of the State.

Really, that is why Congress maintained and kept for itself final authority to amend the congressionally passed purpose of these reservoirs. If it is changed, Congress would change it and it would represent a national decision, not a local decision. Do you think that is sound policy?

General JACKSON. I believe as spelled out in the Water Supply Act of 1958, that is sound policy.

Senator SESSIONS. The environmental impact statement, if you change the manuals, the flow rate and the withdrawal rate, an environmental impact statement is required?

General JACKSON. Yes, Senator, it is.

Senator SESSIONS. I have been informed that you intend to use the contractual amount as the authorized amount when you do the environmental impact statement, but if the historical flow coming out of there is greater and that withdrawal rate is going to be approved in the future, wouldn't you have to do an environmental impact statement on the larger flow rather than the contract flow?

General JACKSON. I am assuming you are talking about the ACT Water Manual update?

Senator SESSIONS. Yes.

General JACKSON. We are basing our water control manual update on what is in the contracted amount.

Senator SESSIONS. What if you take out more than that? Are you telling me you're going to stay at that contract amount?

General JACKSON. Senator, yes, I am.

Senator SESSIONS. Let me ask you about the modified fall releases under the proposed Lake Allatoona manual. The Corps' decision or effort to alter the elevation levels in the Lake from October 1 through November 15 of each year, would simply extend a recreation system at Lake Allatoona, but fall is the dry time of the year and can have a big impact downstream.

In other words, you maintain high levels of the Lake from October through mid November through retaining water, not allowing it to flow as you have before and that could have a significant impact downstream during the fall season which is traditionally dry. If it follows a dry summer, it can be particularly problematic.

Why would you want to change that and reduce the flow downstream at that time of the year?

General JACKSON. I am not intimately familiar with all the details of that. I would have to refer those to my technical experts and reply in writing to the Committee.

Senator SESSIONS. This would be very important to us because there is a good deal of concern on that. It seems to me it would violate the common sense objective that the point of a reservoir is

to store water so it is available for release when there is a shortage of water downstream.

Lake Lanier, in light of the unequivocal congressional testimony by the Corps officers in the 1950's and the passage of the 1956 Act, the Act actually amended the flow to 10 million gallons per day by congressional action.

I am concerned and wouldn't it be consistent with that previous precedent that Congress would be called upon to approve or not, Lake Lanier allowing withdrawal of 170 million gallons a day in water. Wouldn't Congress need to be involved in approval of that?

General JACKSON. I am not quite sure I understand your question. Could you please repeat the question?

Senator SESSIONS. In 1956 after the lakes had been built, there was a desire to get more water from Lake Lanier. Congress approved 10 million gallons per day in withdrawal from the lake. Now it appears we are talking about 170 million gallons per day. Wouldn't that take congressional approval for such a large increase?

General JACKSON. It is my understanding Congress has delegated to us authority to make certain changes administratively without additional legislation as long as it does not require or cannot involve a major structural change, major operational change or seriously affect any of the authorized project purposes.

Senator SESSIONS. In 1956, you apparently felt it was necessary to get approval for 10 million gallons per day. It seems to me if you jumped that to 170 million gallons per day, you for sure ought to get congressional approval. Would you agree?

General JACKSON. I can only follow my interpretation and understanding of the authority we have under the Water Supply Act of 1958. That is the process we are following now as we take a look at Lake Lanier and the ACF system.

Senator SESSIONS. With regard to Lake Lanier, we have the Eleventh Circuit opinion. It has been cited as a victory for the Georgia position and I suppose it is in some ways but also, in a footnote, it was quite clear that it only allows more releases of water from Lake Lanier if there is a withdrawal of water downstream for Atlanta or the other areas in the metropolitan area. Is that the way you understand the decision?

General JACKSON. My understanding of the decision was that it authorized water supply as an authorized purpose for Lake Lanier.

Senator SESSIONS. That is an overstatement of it, I think, and you need to know this. You need to go back and have your lawyers look at it because it explicitly did not approve direct withdrawals of water from the reservoir. It indicated that water could be released from the reservoir to flow downstream if it was needed downstream to be captured for water supply in the region. Do you understand it that way?

General JACKSON. I will have to refer to my lawyers to make sure that I do understand it correctly.

Senator SESSIONS. You should talk to your lawyers and make sure your lawyers are thinking correctly too, because a bit of his memorandum I think goes beyond what the opinion said.

I would offer for the record some analysis we did of the memo by Mr. Stockdale, the Chief Counsel for the Corps. We questioned

some of the opinions in his memorandum. Without objection, it will be accepted.

[The referenced information follows:]

CONCERNS WITH 2012 ARMY LEGAL MEMO

The Water Supply Act of 1958 (WSA) provides that Congress must approve any reallocation of storage in a federal reservoir that would seriously affect authorized project purposes or would involve major structural or operational change.

In a June 2012 memo, Corps General Counsel Stockdale stated that serious effects on authorized project purposes and major operational change means “changes and effects that fundamentally depart from Congressional expectations for a project.”

Stockdale concluded that the Corps can accommodate under the WSA gross direct withdrawals from Lake Lanier of 277 mgd (net withdrawals of 177 mgd) without Congressional approval. That amount of usage would require a storage allocation of over 318,000 acre-feet, or 29% of Lake Lanier’s conservation storage pool.

The 2012 Stockdale Memorandum is subject to significant doubts for several reasons, such as:

1. There is no indication in the legislative history that Congress contemplated any direct withdrawals from Lake Lanier for water supply other than 10 mgd to compensate two municipalities for loss of their water-supply intakes when the lake was built.
2. When Congress conducted hearings in 1952 on funding for the construction of Lake Lanier, a Corps officer testified that no storage in Lake Lanier was to be set aside for water supply and that, if Atlanta later wanted to use the reservoir for water supply, the Corps would have to come back to Congress for authorization.
3. In 1956, the Corps told Gwinnett County that it lacked any authority to allocate just 10 mgd for water-supply withdrawals. Gwinnett County, subsequently, obtained Congressional approval for a bill authorizing 10 mgd (but not any more).
4. When the Corps proposed allocating 22% of Lake Lanier’s conservation storage pool for water supply purposes under the WSA, the D.C. Circuit held that such a reallocation amounted to a major operational change on its face and thus required Congressional approval.
5. The Corps is interpreting serious effects and major operational change to mean the same thing. But the law is settled that when Congress uses different terms, the terms must be given separate meaning.
6. The 2012 Memo contradicts prior Memos by Mr. Stockdale on the same topic. For example, in 2002, Stockdale said that the need for Congressional approval could be determined by looking at the size of the reallocation and concluded that a 34% reallocation at Lake Lanier would require Congressional approval.
7. In 2002, Stockdale acknowledged, separate from the Water Supply Act requirement, that the Corps and Congress had a long-term understanding that the Corps must seek Congressional approval whenever a reallocation would result in a substantial change to the relative sizes of project purposes. Stockdale’s 2012 memo ignores this.

Westlaw

467 F.Supp. 885
467 F.Supp. 885, 9 Envtl. L. Rep. 20,492
(Cite as: 467 F.Supp. 885)

Page 1

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United States District Court, N.D. Mississippi, Eastern Division.

ENVIRONMENTAL DEFENSE FUND, INC., Committee for Leaving the Environment of America Natural, Glenn H. Clemmer, G. Randall Grace, and F. Glenn Liming,

Plaintiffs, National Audubon Society, Birmingham-Audubon Society, and the Alabama Conservancy, Intervening Plaintiffs,

v.

Clifford R. ALEXANDER, the United States Army Corps of Engineers, and Major General John Morris, Defendants, Tombigbee River Valley Water Management District, Tennessee-Tombigbee Waterway Development Authority, State of Alabama, and Tombigbee Valley Development Authority, Intervening Defendants.

LOUISVILLE AND NASHVILLE RAILROAD, Plaintiff, National Audubon Society, Birmingham Audubon Society, and the Alabama Conservancy, Intervening Plaintiffs,

v.

Clifford R. ALEXANDER, the United States Army Corps of Engineers, and Major General John Morris, Defendants, Tombigbee River Valley Water Management District, Tennessee-Tombigbee Waterway Development Authority, State of Alabama, and Tombigbee Valley Development Authority, Intervening Defendants.

Nos. EC 77-53, 77-54-K.

March 12, 1979.

Environmental organizations sued challenging the construction of the Tennessee-Tombigbee Waterway. The District Court, Keady, Chief Judge, held that: (1) the attack on the widening of the channel to 300 feet was barred by laches; (2) certain changes in design of the channel were within the discretionary authority of the Corps of Engineers, and (3) the construction of several dikes, causeways and dams in the waterway project without obtaining the consent of Congress and having the plans approved by the Chief of Engineers and the Secretary of the Army did not violate federal law.

Judgment for defendants.

West Headnotes

[1] Judgment 228 ➡665

228 Judgment

228XIV Conclusiveness of Adjudication

228XIV(B) Persons Concluded

228k665 k. Identity of Persons in General. Most

Cited Cases

Judgment 228 ➡720

228 Judgment

228XIV Conclusiveness of Adjudication

228XIV(C) Matters Concluded

228k716 Matters in Issue

228k720 k. Matters Actually Litigated and Determined. Most Cited Cases

Suit challenging widening of Tennessee-Tombigbee Waterway to 300 feet and challenging other features of project was not barred by res judicata or collateral estoppel where several different parties plaintiff were involved and where issue of Corps of Engineers' authority to widen channel was not actually litigated in prior case.

[2] Equity 150 ➡85

150 Equity

150II Laches and Stale Demands

150k85 k. Rights of Public. Most Cited Cases

Doctrine of laches applies in context of public issue litigation.

[3] Equity 150 ➡72(1)

150 Equity

150II Laches and Stale Demands

150k68 Grounds and Essentials of Bar

150k72 Prejudice from Delay in General

150k72(1) k. In General. Most Cited Cases

Laches is not based upon mere lapse of time, but is principally question of inequity of permitting claim to be enforced where some change in condition has taken place which would make enforcement of claim unjust.

[4] Canals 68 ➡5

68 Canals

tion; provision of a greater storage capacity required by more complete flood records; shifts in alignment of channels indicated by more detailed surveys; or changes from a concrete to an earth structure because of lack of proper concrete aggregate. These may be considered generally as engineering modifications.

b. Moderate extensions of project scope such as those required to provide *901 flood protection to adjacent urban areas which have developed since the project was authorized, or to provide better channel alignment or larger navigation locks to meet the needs of developing commerce. It would obviously be uneconomical and contrary to the intent of Congress to construct obsolete projects, or to omit flood protection for a part of a city when it was the intent of Congress to authorize flood protection for that city. These may be considered generally as project modifications necessary to meet changed physical and economic conditions.

On the other hand, the Corps of Engineers has considered that it does not have latitude to make modifications which materially extend the scope and change the functions of the project authorized by Congress. It considers that it is necessary to bring a proposed modification of an authorized project to the attention of Congress if further study after authorization shows that:

a. The scope or functions of the project will be materially changed thereby.

b. The plan of improvement will be materially changed from that originally authorized by Congress.

c. There are special circumstances which were not known to the Corps of Engineers or recognized by Congress when the project was authorized.

⌞ No hard-and-fast rule can be cited as governing when a project modification should be presented to Congress for further consideration. Increased cost over the estimate presented to Congress as a basis for authorization is not necessarily a governing criterion, as the major factors giving rise to increased costs are separate and apart from the intent of Congress in authorizing an improvement, and as the Appropriations Committee of Congress are advised of cost changes year by year. (Our emphasis).

These general principles appear to have furnished continuing guidance to the Corps since their publication in

1951. As recently as 1972, the General Counsel for the Corps, when asked his opinion on authority to make a proposed modification of an unrelated project, quoted from a 1969 legal memorandum to the Special Assistant to the Secretary of the Army containing substantially the same language as that in the 1951 Chief's Report (Plt.Ex. 39), and concluded:

The above statement is considered to be an accurate general definition of the discretionary authority of the Chief of Engineers. It is a definition which has been accepted by the Congress and followed by the Corps. It is, however, a very general statement, and some clarification is helpful.

It is the view of this office that the discretionary authority given the Chief of Engineers to make post-authorization changes in projects extends only to what might be termed engineering changes: that is, changes which involve the location, dimension, method of construction, minor variations in the allocation of storage for the various project purposes, and changes in the size and scope of the project to meet needs which differ from those which existed at the time of authorization, so long as the scope and function of the project are not materially altered. The above changes may be made for engineering reasons (i. e., differing foundation conditions) or for economic reasons (i. e., expansion of the town to be protected or larger vessels being used in waterborne commerce). The discretionary authority is not considered to include matters which materially alter the nature of the project, such as the deletion or addition of project purposes where not otherwise authorized by law, or substantial changes in the relative sizes of project purposes. Likewise, the discretionary authority does not contemplate changes in the elements of a project which embody legal relationships, such as requirements of local cooperation which are, in effect, conditions imposed by the Congress to construction of the project. Given the *902 above guidelines, each proposed post-authorization change must be examined individually, and whether the change is or is not a permissible one is finally, a matter of judgment.

Two additional Corps documents have been presented to the court on the assertion that they establish binding guidelines upon the Corps with regard to questions of authority for project modifications. The first is a valid regulation promulgated in 1968, ER 1165-2-305 (Def.Ex. 5), which deals not with the necessity of further congressional authority but with information on significant post-authorization project changes required to be submitted to the Bureau of the Budget for budgetary purposes. This regulation therefore sheds little light on the question

MEMGC-J

21 January 1969

MEMORANDUM FOR: SPECIAL ASSISTANT TO THE SECRETARY OF THE ARMY
FOR CIVIL FUNCTIONS

SUBJECT: Post-Authorization Project Changes

1. You have requested the views of this office on two matters:

(a) the legal requirements for seeking additional authorization in the general case of post-authorization project changes; and

(b) the legal authority for the proposed installation of additional power generating facilities and raising of the pool at the Chief Joseph project.

2. The first of these matters is not susceptible of precise definition. Certain general guidelines may, however, be stated. This was done by the Chief of Engineers in a report to the Special Subcommittee to Study Civil Works of the Committee on Public Works, House of Representatives, printed as Part 1, Volume 3 of the 1951 Annual Report of the Chief of Engineers. In that report, it was stated:

"Favorable survey reports submitted to Congress by the Corps of Engineers usually recommend authorization of a certain improvement subject to such modifications as in the discretion of the Chief of Engineers may appear advisable. The Corps of Engineers recognizes that such permission to alter authorized projects is an important delegation of authority, and has attempted to exercise that privilege carefully. The Corps classes such permissible modifications in two categories:

"a. Those necessary for engineering or construction reasons to produce the full usefulness of the improvement envisioned by Congress, such as shifting a dam from one site to a more adequate nearby site; changes in storage capacity or allocation of a reservoir to ensure its optimum performance for all interests; changes in channel alignment as indicated by more detailed surveys; or change from a concrete to an earth dam, or vice versa, as dictated by more complete foundation explorations or the relative availability and cost of construction materials.

SUPPAR001360

"b. Moderate extensions of authorized project limits, such as levee extensions to protect developing urban areas or increasing the size of locks to meet changing requirements of navigation. Such changes are considered to be those required to meet changing engineering or economic conditions, and within the intent of Congress in authorizing the project.

"On the other hand, the Corps considers it necessary to bring project modifications to the attention of Congress for specific action whenever such modifications will

a. Materially alter the scope or function of the project.

b. Materially change the authorized plan of improvement.

c. Involve special circumstances unknown to the Corps and to Congress when the project was authorized."

3. The above statement is considered to be an accurate general definition of the discretionary authority of the Chief of Engineers. It is a definition which has been accepted by the Congress and followed by the Corps. It is, however, a very general statement, and some clarification is helpful.

4. It is the view of this office that the discretionary authority of the Chief of Engineers to make post-authorization changes in project extends only to what might be termed engineering changes: that is, changes which involve the location, dimension, method of construction, minor variations in the allocation of storage for the various project purposes, and changes in the size and scope of the project to meet needs which differ from those which existed at the time of authorization, as long as the scope and function of the project are not materially altered. The above changes may be made for engineering reasons (i.e., differing foundation conditions) or for economic reasons (i.e., expansion of the town to be protected or larger vessels being used in waterborne commerce). The discretionary authority is not considered to include matters which materially alter the nature of the project, such as the deletion or addition of project purposes where not otherwise authorized by law, or substantial changes in the relative sizes of project purposes. Likewise, the discretionary authority does not contemplate changes in the elements of a project which embody legal relationships, such as requirements of local cooperation which are, in effect, conditions imposed by the Corps on construction of the project. Given the above guidelines, each proposed post-authorization change must be examined individually, and

abutment on the left. The structure will be removable to permit extension of the intake canal westward into Foster Creek Canyon, which will then become the forebay for a second powerhouse contemplated in ultimate development."

11. And, in paragraph 101:

"To provide for utilization of greater regulated flow from future storage reservoirs, the project is laid out so the intake works can be extended across Foster Creek to serve another powerhouse downstream. The closure at the downstream end of the intake canal is designed for removal, if and when such extension is required."

12. The Corps, from the beginning, felt that what was contemplated in the plans of the district engineer was an initial installation of 15 units with a sixteenth added as soon as required, and an ultimate installation of whatever further units would be required to make full utilization of the upstream storage expected to occur in the future. It is noted that the present need for the proposed additional units is, in fact, a result of the construction of additional upstream storage in Canada.

13. In accordance with this understanding of the authorization, the project was designed so as to be adaptable to future expansion, and was so presented to the Appropriations Committees during construction of the initial phase.

14. The Congress, in appropriating funds for the construction of the initial stage of the Chief Joseph project and for preconstruction planning for the 11 additional generating units now proposed, has concurred in the Corps' interpretation of the authorization.

15. Construction funds for the project were first appropriated by the Appropriations Act for Fiscal Year 1949, and the initial stage of the project was substantially completed in 1958. When the project was constructed, it was designed to be adaptable to accommodate additional future generating units, up to an ultimate total of 27. The power facilities constructed initially consist of a concrete gravity intake for the ultimate 27 units, substructure for 20 units, superstructure for 17 units, and 16 generating units each rated at 64,000 kilowatts, for a total initial capacity of 1,024,000 kilowatts.

16. The project was consistently presented to the Appropriations Committees as having an initial capacity of 960,000 kilowatts (the original 15 units), and an ultimate capacity of 1,600,000 kilowatts (27 units). In the Hearings before the House Committee on Appropriations for Fiscal Year 1950, General Feringa stated (at p. 178):

6. The Chief Joseph Dam (formerly known as the Foster Creek Dam) was authorized by the Rivers and Harbors Act of 1946, substantially in accordance with the recommendations of the Chief of Engineers printed in House Document No. 693, 79th Congress.

7. The project, as recommended by the Chief of Engineers, consisted of a dam and powerhouse with an initial installation of 15 turbine units, installed over a specified period, and a sixteenth unit when necessary. These 16 units are now operative, and it is proposed that 11 additional units be installed. The Chief of Engineers stated, in his recommendations, that:

"... the Board recommends authorization, as a part of the comprehensive plan for improvement of the Columbia River, of the construction of Foster Creek Dam and powerhouse in accordance with plans in the report of the district engineer and with modification thereof as in the discretion of the Secretary of War and the Chief of Engineers may be advisable at an estimated cost of \$71,000,000 for the construction of the first three units, and \$33,000,000 additional for a total of 15 units, and with annual maintenance and operation ranging from \$650,000 for the first three units to \$1,200,000 for the 15 units.

"3. After due consideration of these reports, I concur in the views and recommendations of the Board." (underscoring added)

8. The plans in the report of the district engineer, with which the Chief of Engineers concurred, included the installation of the 15 generating units in stages, which are referred to in the recommendations of the Chief. The plans also included the addition of a sixteenth unit when needed, which has been installed, and such other additional units as proved necessary when future upstream storage became available.

9. The district engineer, in his report (paragraph 63) stated that:

"... The initial generating installation proposed herein is 960,000 kilowatts, with 15 Francis turbines rated at 162-foot net head. Space will be available for one additional unit at the initial powerhouse. Regulation by future upstream storage reservoirs would substantially increase the prime power. Therefore, an installation of greater size ultimately may be required. Expansion of the proposed installation has been considered and found to be entirely practicable to whatever extent may be required by probable future storage and load developments."

10. Similarly, in paragraph 93, it is stated:

"The downstream end of the intake canal requires a terminal structure between the intake wall on the right and the rock

"The project will have an initial installed capacity of 960,000 kilowatts and an ultimate installation of 1,600,000 kilowatts."

17. In the justification material printed in the House Hearings for Fiscal Year 1951, the ultimate development of more than 15 units is noted. The statement that the ultimate installation would be 27 units, and the initial 16 (changed from the original 15, to include the sixteenth, which the project document makes provision for) appears uniformly in the justification material furnished the Committees in the ensuing years.

18. In the Fiscal Year 1953 House Hearings, General Chorpene informed the Committee that "the present estimate is based on the installation of 16 units and is not based on the ultimate installation of 11 units more, a total of 27 units." In the Hearings before the Senate Committee for Fiscal Year 1954, Colonel Paules stated:

"We will have space available for additional units making a total possible installation in this project of about 1,750,000 kilowatts." (p. 518)

19. At the Senate Hearings on the Fiscal Year 1955 Appropriations Bill, the following exchanges took place, explaining the planned future expansion (pp. 372-375):

"Senator Ellender. I notice here that the initial number of units will be 16, and you have 20 intermediate. Does that mean that you contemplate putting four more in the future?"

"Colonel Whipple. We expect, sir, that with the future development of storage by the Libby Reservoir and possibly other storage upstream in Canada, that something like 20 units can be foreseen as probable to be required in the future."

"Senator Ellender. Then in the cost of \$186 million plus, have you made provisions in order to obtain the places where these four additional units are going to be erected if and when that determination is made, that you can put them there because of more storage upstream?"

"Colonel Whipple. Sir, we have planned the powerhouse so as to allow the installation of 27 units. Not only the 20 that you refer to but 7 more at some possible future date."

"Senator Ellender. Why so many? Do you anticipate that the 27 might be usable at one time?"

"Colonel Whipple. We think that possibly that would be the case, and since this is such a favorable place to put additional peaking capacity for the system as a whole, we feel that minimum provisions should be made at this time to allow that powerhouse to be extended even though we have no definite plans for its extension at this time.

"Senator Ellender. But the amounts that you now are asking for contemplate only 16 of those possible 27?

"Colonel Whipple. It will provide for the installation of 16 and minimum provisions at this time for the future installation of as many as 27.

"Senator Ellender. Are we to understand, then, that the only provision that will have to be made in the future by way of appropriations will be to obtain money sufficient to pay for the machinery?

"Colonel Whipple. No, sir; it will be necessary to extend the powerhouse and install the machinery. It will be less than the full cost of a powerhouse, because part of the excavation has been made.

"Senator Ellender. You mean that work will be done in connection with the 16 units?

"Colonel Whipple. Yes, sir.

"Senator Ellender. Mr. Chairman?

"Senator Knowland. Yes, Senator Ellender.

"Senator Ellender. A moment ago you stated that the initial installation was for 16 units, and intermediate 20 units.

"Colonel Whipple. Yes, sir.

"Senator Ellender. And an ultimate 27 units.

"Colonel Whipple. Yes, sir.

"Senator Ellender. I notice down here you state that provision is being made for the ultimate installation of 27 units. As I understood you a while ago, you said that something in addition to the installation of the machinery would be necessary in order to provide the 27 units. What is that additional? Why could it not be done now?

POWERHOUSE CONSTRUCTION

"Colonel Whipple. Sir, on that I will have to refer you to the peculiar way in which this project is laid out. If you will turn to page 692 in the justification book and look in the upper left hand corner where the plan is shown you will see that the powerhouse does not extend across the river. The powerhouse required is too long and the river is so narrow at that point that the spillway is placed in the river channel and actually the powerhouse is built by excavating a portion of the bank. It is not necessary to build all of the powerhouse at this time in order to get across the river. The question that you asked is answered by the rather unusual circumstances in connection with the construction of the powerhouse in this particular case.

"Senator Ellender. I see. Well, now, the powerhouse that you are now erecting or that you propose to erect, will that take care of the intermediate number, that is, the 20 units?

"Colonel Whipple. Yes, sir. The structure of the powerhouse will include minimum provisions for the 20, but not for the 27.

"Senator Ellender. That is what I am saying, just the 20.

"Colonel Whipple. Yes, sir.

"Senator Ellender. And the remaining 7, you would have to build a complete extension.

"Colonel Whipple. Build a complete extension of the powerhouse, on which nothing is being done at this time.

"Senator Ellender. I see. Thank you. I wanted to clear the record, Mr. Chairman, because I had misunderstood it a moment ago.

From this point on, the matter was not questioned further.

20. In 1966, local interests sought funds for the initiation of preconstruction planning for installation of an additional 11 generating units. At the hearings before the Senate Appropriations Committee for Fiscal Year 1966 Appropriations, the following exchange took place (p. 2707):

CHIEF JOSEPH DAM, WASH. (ADDITIONAL POWER UNITS)

"Senator Ellender. There was nothing in the budget and local interest have requested \$50,000 to initiate planning. What is your capability on this project?

"General Graham. \$50,000 to initiate planning, Mr. Chairman.

"Senator Ellender. Is the installation of the additional power units at Chief Joseph Dam fully authorized?

"General Graham. Yes, sir.

"Senator Ellender. Would you submit a statement for the record?

"General Graham. Yes, Mr. Chairman.

"If the first four units are not installed by August of 1972, the Federal system would be unable to meet its obligations. These obligations include the sale of Canadian entitlement in California and the interruptible portion of the large industrial load in the Pacific Northwest. The Federal system's secondary energy has been committed to serve the interruptible industrial loads during all years with better than critical streamflow conditions. Without these installations service to the interruptible industrial loads would have to be curtailed during the peakload period.

"This project is located in an area designated by the Area Redevelopment Administration as a redevelopment area on the basis of a high rate of continuous unemployment. The benefit-cost ratio is 4.8 to 1."

21. In the Hearings before the House Appropriations Committee on the Fiscal Year 1967 Appropriations Bill, the following discussion took place (p. 94):

"Mr. Kirwin. Please explain the need for these 11 additional power units at a cost of \$57,500,000.

"General Byzer. Here, again, these units are necessary to meet the power demands in the Pacific Northwest resulting primarily from the Canadian treaty and the intertie with the Pacific Southwest.

"Mr. Kirwin. Please outline for the record the authorization for the construction of these additional units.

"General Byzer. Chief Joseph dam and powerhouse was authorized by the River and Harbor Act of 1946 including the additional units. Sixteen units were installed initially with substructure for 4 additional units and an intake structure with gate bays for the initial 16 units as well as the 11 additional units.

"Mr. Kirvan. Please describe briefly what will be involved in the addition of these units at the present dam site.

"General Hyzer. We are extending the powerhouse to the full length from 16 to 27 units. The installed capacity would increase from a little over 1 million kilowatts to 1,728,000 kilowatts. This is a new planning start and we are also studying the possibility of increasing the capacity of these additional units and possibly providing additional units beyond the 27."

22. For Fiscal Year 1968, as in 1966 and 1967, preconstruction planning funds were appropriated for the additional units at Chief Joseph. Such funds were also appropriated for Fiscal Year 1969.

23. Taking the project document, in accordance with which the Chief Joseph project was authorized, alone, it is arguable whether generating units in addition to the original 16 are authorized. The document speaks of the installation of 16 units when first costs and operation and maintenance costs are discussed, and, on the basis of the Chief of Engineers' recommendations it may be argued that all that was authorized was an installation of 15 units in specified stages and a sixteenth when necessary. On the other hand, the plans of the district engineer, with which the Chief of Engineers concurred, contemplated the ultimate installation of whatever units proved necessary to meet the needs of future upstream storage.

24. However, any ambiguity which may be said to exist would seem to have been resolved by the Congress. As was noted previously, the Corps consistently interpreted the project authorization to include the ultimate installation now proposed. Further, the Congress, from shortly after project authorization to the present, has concurred in this interpretation, and appropriated funds on that basis. In light of what has occurred, there would seem to be no point in questioning the authorization at this time.

FOR THE CHIEF OF ENGINEERS:

E. HARRING SELTZER
General Counsel

EXAMPLES OF CONGRESSIONAL APPROVAL OF WATER SUPPLY USE AT USACE RESERVOIRS

Congressional Reallocations of Existing Reservoir Storage

Lake Texoma (TX). In 1986, Congress passed PL 99-662, which specifically authorized the USACE to reallocate 300,000 acre-feet from hydropower storage to water supply; that was a reallocation of approximately 24% of the conservation pool. PL 99-662 § 838(a).

Beaver Lake (AR). In 1999, Congress passed PL 106-53, section 521 of which directed the USACE to “reallocate approximately 31,000 additional acre-feet at Beaver Lake, Arkansas, to water supply storage at no cost to the Beaver Water District or the Carroll-Boone Water District.” That was a small reallocation that only affected 3.3% of the conservation pool; nonetheless, it was important because the Corps had reached the extent of its ability to make discretionary water supply reallocations for the reservoir.

Chatfield Reservoir (CO). PL 99-662, section 808, authorized the USACE to act upon the request of the Colorado Department of National Resources and “reassign a portion of the storage space in the Chatfield Lake project to joint flood control-conservation purposes, including storage for municipal and industrial water supply, agriculture, and recreation and fishery habitat protection and enhancement.” Pursuant to that authorization, the Corps proposed a reallocation of 20,600 acre feet of Chatfield flood control storage to water supply. That amounts to a reallocation of 5.8% of the flood-control pool.

Cedar Bluff Lake (KS). PL 102-575, sections 901 to 906, authorized the Secretary of the Interior to reformulate the Cedar Bluff Unit, which reallocated the existing conservation pool to create two new pools, each of which included water supply as an intended use. (The law also authorized the Secretary to sell the United States’ interest in the project to the State of Kansas as part of the reformulation.)

Congressional Approval of Interstate Compacts for Water Allocation

Animas-La Plata Project Compact. In passing PL 90-537, Congress approved the Animas-La Plata Project Compact, which provides for storage and diversion of water from the Animas and La Plata River systems in Colorado and New Mexico.

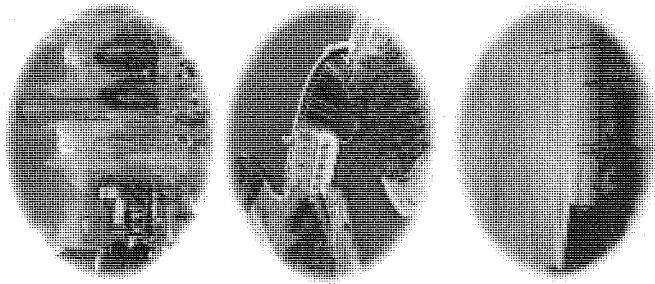
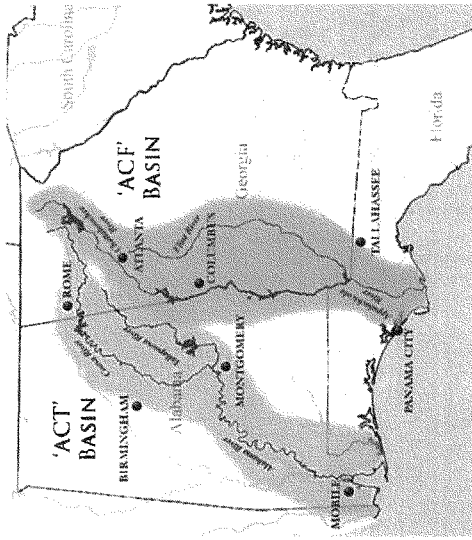
Red River Compact. In 1980, Congress approved the Red River Compact, which provides for the equitable apportionment of the waters of the Red River and its tributaries among the States of Arkansas, Louisiana, Oklahoma, and Texas. PL 96-564, 94 Stat. 3305.

Congressional Approval of Specific Projects for Water Supply Use

Jordan Lake (NC). PL 88-253, 77 Stat. 840-41 authorized and funded the construction of the Cape Fear River Basin project, which included Jordan Lake. That authorization included use of storage for water supply.

Patoka Lake (IN). PL 89-298, 79 Stat. 1081 authorized and funded the Patoka Dam and Reservoir project, which created Patoka Lake. That authorization adopted the Corps of Engineer’s recommendation that the Lake serve as a source of water supply.

Committee on Environment & Public Works
 United States Senate
 Sen. Jeff Sessions (R-AL)
 July 22, 2013
 3 p.m.

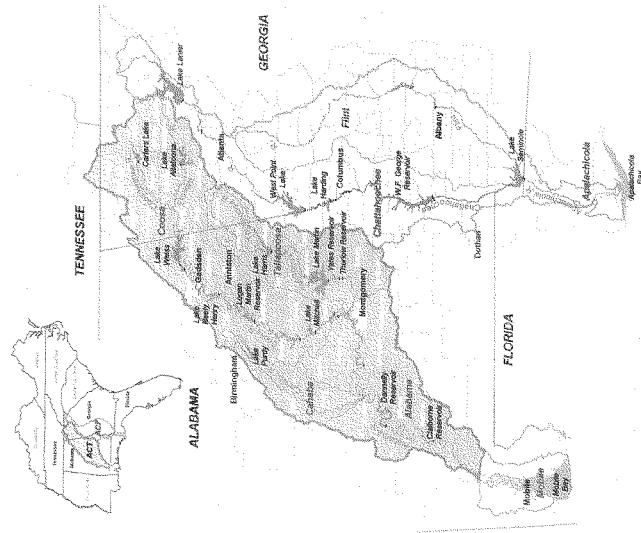


Hearing: "Oversight of Army Corps of Engineers Water Management
 in the Apalachicola-Chattahoochee-Flint (ACF) and the Alabama-
 Coosa-Tallapoosa (ACT) River Systems"

- Apalachicola-Chattahoochee-Flint
- Alabama-Coosa-Tallapoosa

- Lake Lanier (ACF) & Lake Allatoona (ACT) have become major sources for Atlanta water supply and recreation.

- Degrades water quality
- Harms fish & wildlife
- Loss of hydropower
- Less water supply
- Agriculture & Industry
- Impacts Recreational Uses
- Harms Apalachicola Bay



**Atlanta: A Growing City Placing Huge
Demands on Multi-State Shared Water Resources**

- Constructed in the 1950s, when Atlanta's metro population was **725,000 people**, Lake Lanier and Lake Allatoona impound more than 1.37 million acre-feet of water, collectively.

	Conservation Storage Pool (acre-feet)	% Used by Atlanta- Area Interests for Water Supply (1950s)	% Used by Atlanta- Area Interests for Water Supply (2000s)
Lake Lanier	1,087,600 AF	≤ 1%	≥ 10% - 20%
Lake Allatoona	284,580 AF	≤ 1%	≥ 10% - 20%

- Today, Atlanta's metro population includes more than **5.5 million people**.

**Atlanta Chose Not
to Contribute to the
Costs of Building
These Reservoirs**

"The City of Atlanta has many sources of potential water supply in north Georgia. Certainly in view of other possible sources of Atlanta's future water we should not be asked to contribute [funds] to a dam which the Army [Corps of Engineers] have said is vitally necessary for navigation and flood control on the balance of the river."

*-Letter from William B.
Hartsfield, Mayor of Atlanta, to
Rep. James C. Davis of the 5th
Congressional District (1948)*

**The Corps Took the Position That Congress
Would Have to Authorize Major Water Supply Withdrawals by Atlanta**

Rep. Gerald Ford: "Is it not conceivable in the future ... that the city of Atlanta will make demands on the Corps [] for certain water at certain times because of the needs of [Atlanta], when at the same time it will be for the best interests of the over-all picture—power, navigation, and flood control—to retain water in the reservoir [Lake Lanier]?"

Col. Potter (Army Corps): "... [W]e would have to come back, I believe, to Congress to alter the authorization of that project, were it a major diversion of the water... [W]e take a very dim view of changing a project to the subsequent needs without Congress having a hand in it."

Working Before the U.S. House of Representatives Committee on Appropriations (1952)

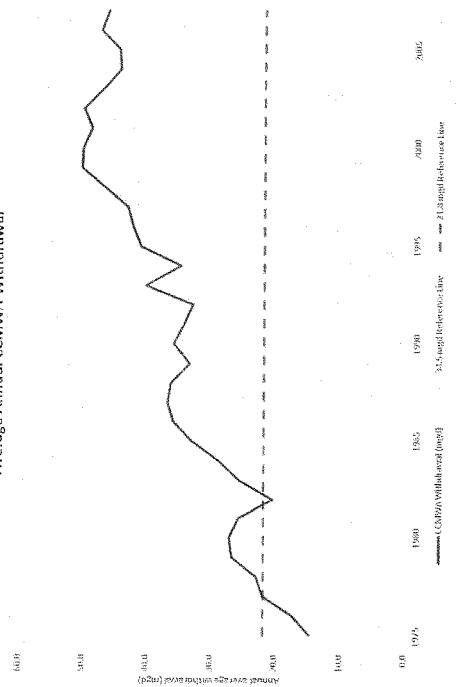
Army Corps' Statutory Authority to Use Federal Reservoirs for Local Water Supply Uses

Congress Gave Corps Specific Authority at Lake Lanier & Lake Atlanta	Water Supply Act Gives the Corps General Authority at All Federal Lakes
<ul style="list-style-type: none"> • Hydropower • Flood control • Navigation • <i>Water Supply, according to the 11th Circuit, but the court only addressed downstream withdrawals from the river as it passes Atlanta (not directly from Lake Lanier)</i> 	<ul style="list-style-type: none"> • "[R]ecognize[s] the primary responsibility of the States and local interests in developing water supplies..." • Requires congressional approval for water supply uses that "seriously affect" other uses or "Involve[s] major structural or operational changes." • D.C. Circuit (2008) – reallocating 9% for local water supply "unambiguously constitute[d] the type of major operational change" for which congressional approval was required under the Water Supply Act.

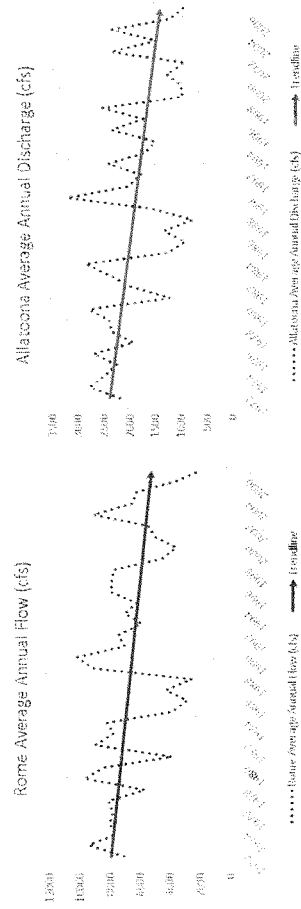
Case Study: Water Storage Contracts at Lake Allatoona

- Atlanta-area interests (Cobb County/Marietta) have a water supply contract with the Corps for 13,140 acre-feet at Lake Allatoona, which equals approximately 4.6% of the lake's conservation storage pool. This contract was entered under the Water Supply Act. But their withdrawals constitute 17% of the lake's conservation storage pool.

Average Annual CCMWA Withdrawal

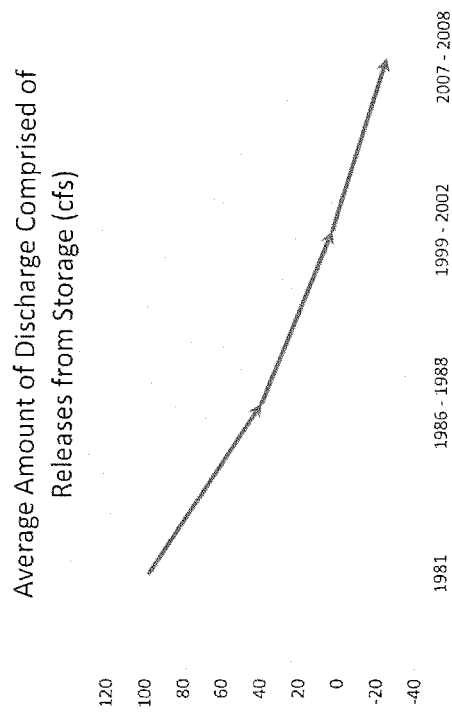


As Atlanta-area interests withdraw more water from Lake Allatoona, downstream flows are decreasing ...

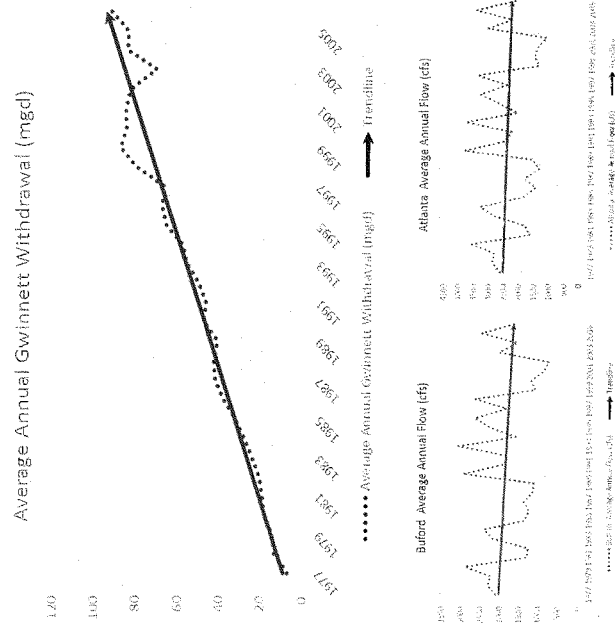


... which harms water quality, aquatic species, hydropower, agriculture, economic development, water supply, and other concerns in Alabama, Florida, and other areas of Georgia.

Reductions in downstream flows have been most pronounced during times of drought, when the Corps has usually chosen to support Atlanta-area water supply and recreation interests and, in turn, harmed downstream communities.



The dynamic is similar in the ACF basin, where Atlanta area's direct withdrawals from Lake Lanier are increasing dramatically while flows downstream are being reduced.



Now, Atlanta Wants Even More Water:

- This year, the State of Georgia requested a 280% increase in their contractually authorized storage allocation for Atlanta's water supply withdrawals from Lake Allatoona.
- Also this year, Georgia renewed its request for water supply storage at Lake Lanier, where there is no current contract in place, seeking as much as 30% of Lake Lanier's storage for Atlanta water supply.

And the Corps Seems Willing to Give More Water to Atlanta:

"I conclude that the Corps has the legal authority to accommodate the full amount of water supply withdrawals and return flows that Georgia has requested by 2030... Any decision to exercise that discretion would occur at a later time..."

***-Memorandum Signed By Earl Stockdale, Chief
Counsel of the Army Corps of Engineers (June
25, 2012)***

ACF and ACT Stakeholders Are Speaking Out

- Tri-Rivers Waterway Development Association
- Coosa-Alabama River Improvement Association
- Business Council of Alabama
- Alabama Pulp & Paper Council
- Alabama Department of Environmental Management
- Apalachicola Riverkeeper
- ACF Stakeholders Group
- Water Works & Sanitary Sewer Board of the City of Montgomery
- Logan Martin Lake Protection Association
- Mobile Area Water & Sewer Association
- Neely Henry Lake Association
- Manufacture Alabama
- Columbus Water Works
- City of Lufkin
- Florida Department of Environmental Protection
- Friends of Lake Eufaula
- Help Save the Apalachicola River Group
- National Wildlife Federation
- West Point Lake Coalition
- Apalachicola Bay Chamber of Commerce
- Chattahoochee Riverkeeper
- Franklin County Seafood Workers Association
- Southeastern Federal Power Customers
- And many others...

Congress is Watching the Corps' Actions
in the ACF-ACT Basin Very Closely

WRDA Section 2015, as passed by the Senate this year:

- "The Committees of jurisdiction are very concerned about the operation of projects in the [ACF and ACT] River System..."
- "[T]his ongoing water resources dispute raises serious concerns related to the [Corps'] authority ... to allocate substantial storage at projects to provide local water supply pursuant to the Water Supply Act of 1958 absent congressional approval."
- "[The] Committees of jurisdiction strongly urge the Governors of the affected States to reach agreement on an interstate water compact as soon as possible..."
- "Absent such action, the Committees of jurisdiction should consider appropriate legislation to address these matters including any necessary clarifications to the Water Supply Act of 1958 or other law..."

Congressional Scrutiny of the Corps' Actions

Similar to Section 2015 of the Committee-reported version of WRDA, Rubio Amendment No. 601 would have required Congressional approval for Water Supply Act reallocations that exceeded 5% of a federal reservoir's conservation storage pool. The Rubio amendment would not have applied the 5% limitation to reservoirs in the Western U.S. (where water supply is governed under different legal regimes) or smaller reservoirs. In addition, the Rubio amendment would not have applied the 5% limitation to allocations authorized pursuant to interstate water compacts or other project-specific statutory authority.

- ***Amendment No. 601 to WRDA filed by Sens.
Rubio, Sessions, Nelson, and Shelby***

Congressional Scrutiny of the Corps' Actions

"We believe that the Army Corps of Engineers is **overstepping its authority** by reallocating water from [] Lake Lanier to Atlanta's metropolitan area without proper Congressional oversight... We are hopeful that you will work closely with our delegation ... to ensure that a legislative solution is ... in [WRDA]."

– *Letter to House T&I Committee Chairman Shuster from 26 Members of the U.S. House of Representatives from Florida (May 13, 2013)*

"The Corps of Engineers has **unilaterally changed** the operation of [Lake Lanier and Lake Allatoona] to support Atlanta's water-supply demands and, in so doing, has **substantially diminished river flows** in Alabama... The Corps ... has interpreted the Water Supply Act to give it almost complete discretion to use federal reservoirs to support local water supply. We urge your committee to include language in the WRDA bill that **sets clear numerical thresholds on the limits of the Corps' authority** to use federal reservoirs for local water supply without congressional approval."

– *Letter to House T&I Committee Chairman Shuster from 7 Members of the U.S. House of Representatives from Alabama (June 3, 2013)*

Solutions?

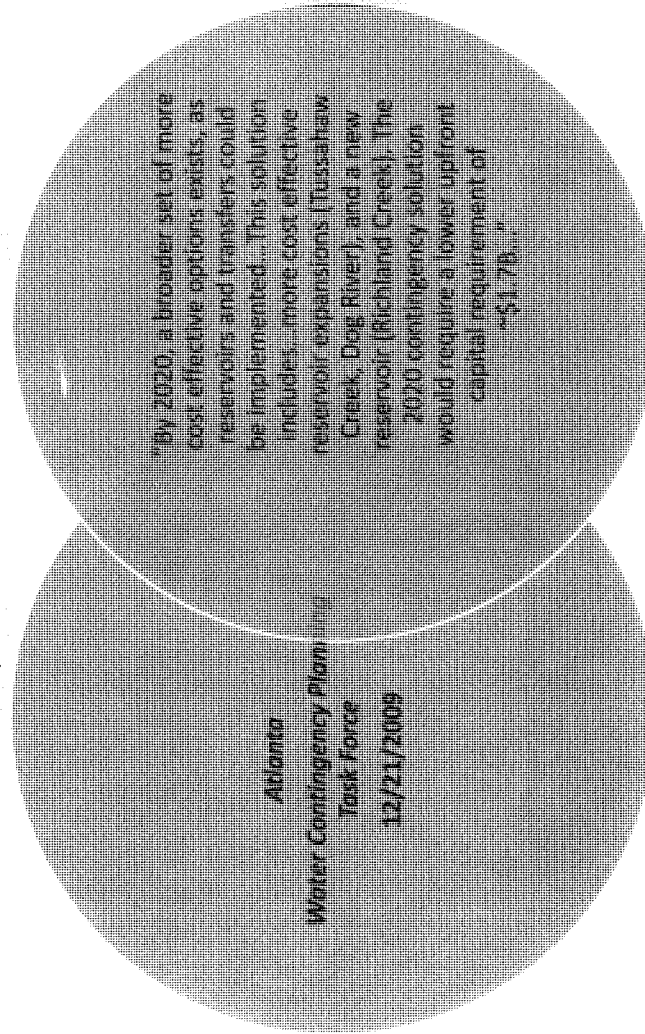
"[W]e strongly urge your personal and direct involvement in fostering efforts to enable the States of Alabama, Georgia, and Florida to reach an amicable and reasonable water compact as soon as possible. We believe that it is essential that the Army Corps not take actions that favor the position of any of the three States, but rather the Army Corps should serve as a neutral facilitator of a negotiated solution."

- Letter from EPW Chairman Barbara Boxer (D-CA) and Ranking Member David Vitter (R-LA) to Assistant Secretary of the Army Corps, Jo Ellen Darcy (May 16, 2013)

"Like you, I believe a negotiated solution among the three States is the best way to solve the longstanding dispute concerning the ACT and ACF Basins. But the Corps' adherence to the Water Supply Act is essential if we are going to make any progress in reaching a settlement."

- Letter from Governor of Alabama, Robert Bentley, to EPW Chairman Barbara Boxer (D-CA) and Ranking Member David Vitter (R-LA) dated July 15, 2013

Atlanta is building a new billion-dollar football stadium for the Falcons that is expected to open in 2017. Atlanta could spend a similar amount of money by 2020 and substantially reduce its reliance on Lake Lanier, at minimal costs to Atlanta area residents.





Earlier guidance had not included numeric criteria. This guidance did not state that reallocations above those amounts automatically were deemed significant or major reallocations. However, as discussed later in this report, the Corps issued a legal memorandum in 2012 explaining that it would rely on “actual operational changes and impacts” rather than an amount or percentage of storage when evaluating its authority under the WSA.²²

Corps Reallocations Under the WSA

A total of 134 Corps reservoirs have roughly 11 million acre-feet (AF) of storage designated for M&I water.²³ Most of the M&I water stored is authorized under project-specific authorities. However, 44 reservoirs derive all or part of their M&I storage authority from the WSA (see **Table 1** for a list of the reservoirs). The WSA is the basis for less than 640,000 AF in reallocations to M&I of Corps storage.

Table 1 shows that the Corps has reallocated more than 50,000 AF of storage space for M&I use at only one reservoir, Lake Texoma (TX/OK). The Corps has used its discretionary authority to perform four reallocations at Lake Texoma—one for 77,400 AF (later revised to 84,099 AF) and three smaller reallocations, for a total of 103,003 AF. Other Texoma reallocations have been made with specific congressional approval.²⁴ The 77,400 AF reallocation from hydropower to M&I use was approved in a 1985 Corps document that included a compensation arrangement for lost hydropower, which had been negotiated among Lake Texoma stakeholders.²⁵ The Corps found that the reallocation would neither significantly harm the lake’s authorized purposes (in part because of the compensation arrangement), nor require significant structural modifications. Thus, the Corps concluded that the transfer could be performed under the WSA without congressional approval, even though it exceeded the agency-established policy limiting reallocations without congressional approval to 50,000 AF.

Table 1 shows that the Corps stayed below the 15% of usable storage criterion, except at Cowanesque Lake (PA), where reallocated water supply represents almost 30% of storage. The Cowanesque Lake case is unusual in that it represents a mix of project-specific reallocation direction from Congress and use of the Corps’ discretionary authority under the WSA. The Cowanesque reallocation was mentioned in P.L. 99-88, the Supplemental Appropriations Act of 1985, and was discussed as occurring under the Corps’ WSA discretionary authority in the accompanying H.Rept. 99-236.²⁶

²² Office of the Chief Counsel, *Authority to Provide for Municipal and Industrial Water Supply from the Buford Dam/Lake Lanier Project, Georgia*, U.S. Army Corps of Engineers, at 38 (June 25, 2012), available at http://www.sam.usace.army.mil/2012ACF_legalopinion.pdf.

²³ Data in this paragraph is derived from multiple sources, including data provided to CRS directly by Corps staff and data in U.S. Army Corps of Engineers, *Water Supply Database 2005 Update* (Alexandria, VA: Institute for Water Resources April 2006), available at http://www.swd.usace.army.mil/pcx/pdf/Water_Supply_Database_2005_Update.pdf.

²⁴ For example, a Lake Texoma reallocation of 300,000 AF was authorized in Section 838 of WRDA 1986. P.L. 99-662.

²⁵ Originally this reallocation was for 77,400 AF, but a later updated sediment study resulted in the reallocation being increased to 84,099 AF (U.S. Army Corps of Engineers, *Letter Report Dennison Dam (Lake Texoma) North Texas Municipal Water District*, September 6, 1985). Select Members of Congress from Oklahoma and Texas were consulted and informed about the reallocation.

²⁶ H.Rept. 99-236 stated: “The modification of the existing project for water supply is authorized by the Flood Control (continued...)”

The Corps is to evaluate whether reallocation would be subject to the limitations of the WSA when studying potential reallocations. Whether the studies used to support the reallocations shown in **Table 1** sufficiently evaluated how an M&I reallocation may affect authorized purposes or whether it may constitute a major operational change has been a general concern. An evaluation of the sufficiency of Corps reallocation analyses is beyond the scope of this CRS report.

Table 1. Corps Reservoirs with M&I Water Supply Reallocated Using WSA Authority

Reservoir Name and State	Usable Reservoir Storage (AF)	Supply Reallocated Under WSA (AF)	% of Storage Reallocated Under WSA
Denison Dam, L. Texoma, OK & TX	4,012,113	103,003	2.57
Melvorn Lake, KS	337,000	50,000	14.84
Stockton Lake, MO	1,649,000	50,000	3.03
Tuttle Creek Lake, KS	2,001,000	50,000	2.50
Waco Lake, TX	733,536	47,526	6.48
Pomona Lake, KS	240,331	32,500	13.52
Hartwell, GA & SC	899,400	26,574	2.95
Cowanesque, PA	86,650	25,600	29.54
Tenkiller Ferry Lake, OK	1,458,000	25,472	1.75
John H. Kerr, VA	2,308,400	21,115	0.91
Beaver Lake, AR	1,224,700	20,995	1.71
Allatoona, GA	230,593	19,511	8.46
J. Percy Priest Dam & Reservoir, TN	124,000	17,311	13.96
Wister Lake, OK	417,600	13,819	3.31
Kanopolis Lake, KS	418,752	12,500	2.99
Marion, OK	141,114	12,500	8.86
Greers Ferry Lake, AR	1,650,500	11,556	0.70
Mosquito Creek Lake, OH	76,300	11,000	14.42
Youghiogheny River Lake, PA	151,000	10,000	6.62
Elk City, OK	248,398	10,000	4.03
John Redmond, OK	574,918	10,000	1.74
Council Grove Lake, OK	112,882	8,000	7.09

(...continued)

Act of 1958 and would be accomplished under the discretionary authority of the chief of Engineers.... The proposed modification for water supply would enable two electric utility companies to meet their consumptive use make-up needs during drought conditions." The reallocation was made from flood control to M&I; the reallocation supports downstream flows for cooling water for electric utilities during drought. Few releases have been made for this industrial use. The reallocation was accompanied by the raising of the reservoir pool; the cost of the raising, the reallocated storage space, related operations and maintenance, and relocation of and improvements to recreation facilities were assigned to the M&I purpose.

Reallocation of Water Storage at Federal Water Projects for M&I Water Supply

Reservoir Name and State	Usable Reservoir Storage (AF)	Supply Reallocated Under WSA (AF)	% of Storage Reallocated Under WSA
Center Hill Lake, TN	492,000	7,212	1.47
Rathbun Lake, IA	528,000	6,680	1.27
Curwensville, PA	111,998	5,360	4.79
Enid, MS	602,400	4,500	0.75
Green River Lake, KY	53,825	3,460	6.43
John W. Flannagan, VA	85,000	3,360	3.95
J Strom Thurmond, GA & SC	1,045,000	3,327	0.32
Grayson Lake, KY	119,000	2,508	2.11
Dale Hollow Lake, TN & KY	496,000	2,211	0.45
Carr Creek Lake, KY	34,981	2,052	5.87
Blakey Mt. Dam, Lake Ouachita, AR	617,400	1,575	0.26
Blue Mountain Lake, AR	233,260	1,550	0.66
Norfolk Lake, AR	1,438,000	900	0.06
Bull Shoals Lake, AR	3,363,000	880	0.03
Richard B. Russell, GA & SC	266,806	872	0.33
Carters, GA	230,593	818	0.35
Cave Run Lake, KY	47,000	802	1.71
Laurel River Lake, KY	185,000	519	0.28
Summersville Lake, WV	57,900	468	0.81
Rough River Lake, KY	90,210	402	0.45
Harry S Truman Dam & Res., MO	4,959,000	283	0.01
Nimrod Lake, AR	307,000	143	0.05
Lake Lanier, GA	NA	NA	NA

Source: CRS, modified from Corps data provided on December 17, 2009.

Notes: NA = not available; Lake Cumberland (KY) is not included because it currently does not have authorized M&I water supply storage under the WSA.

CRS included Lake Lanier in **Table 1**, but the quantities associated with supply reallocated under the WSA currently are not available. Lake Cumberland (KY) is not included, although M&I withdrawals occur there, because these withdrawals have not been authorized.²⁷ Enforcement action to stop the withdrawals at Lake Cumberland has not been taken. How many other unauthorized withdrawals and operational actions that support M&I uses occur at other Corps facilities is largely unknown as many Corps dams are decades old, often predating the WSA, and their operations have evolved incrementally over time.

²⁷ Telephone Conversation between CRS and Corps staff (December 17, 2009).

Senator SESSIONS. The downstream areas, Florida and Alabama particularly, have been concerned about a possible bias of the Corps toward Atlanta on these water issues over quite a long time. It is causing a number of problems.

Will you agree to take a close look at the letter submitted by Chairman Boxer and Ranking Member Vitter and the comments filed by the Alabama and Florida stakeholders and not favor any one State but follow the law as plainly written?

General JACKSON. We follow all of the authorized purposes for the system and all the applicable laws that are appropriate. We do consider all comments and work collaboratively up and down the system as we work to make decisions on our operations manuals as they are being developed.

We will, in fact, consider all comments as I mentioned in my statement from members of the public and stakeholders in regard to these issues.

Senator SESSIONS. I am asking a little more than that. I am saying will you ensure that you follow the recommendations of Chairman Boxer and Ranking Member Vitter and not favor any one State but follow the law?

General JACKSON. Yes, sir, we will follow the law.

Senator SESSIONS. Would you agree that it is not permissible under the law to take the water first and then get a legal authority later?

General JACKSON. We follow the authorized purposes and what is represented to us in law. That is how we will work our alternatives for water that would be withdrawn to meet any requests or project purposes.

Senator SESSIONS. One of the questions suggested from Florida is this. Does the Corps agree with the U.S. Fish and Wildlife Service's assessment that projected increases in Georgia's consumptive uses will increase the frequency and duration of low flows in Florida's Apalachicola River?

General JACKSON. I am not quite sure I understand.

Senator SESSIONS. Do you agree with the Fish and Wildlife Service's assessment that the increases in Georgia's consumptive uses of water, withdrawal of water, will increase the frequency and duration of low flows in Florida's Apalachicola River?

General JACKSON. Senator, I have not seen that Fish and Wildlife Service opinion.

Senator SESSIONS. You can get back with us on that, but I would note that is the Fish and Wildlife Service's opinion. It seems pretty obvious.

Has the Corps determined the maximum amount of water that Georgia can consume without affecting the downstream?

General JACKSON. No, Senator, we have not. That is part of what we will be doing in our water control manual.

Senator SESSIONS. How will you do that? What kind of testimony or evaluation will occur to determine the impact downstream?

General JACKSON. We will do a complete environmental impact study as part of our water control manual update process. We will take in information from all affected parties up and down the water basin. That will be the basis for what we use to develop our

alternatives for consideration for our water control manual operational updates.

Senator SESSIONS. With regard to withdrawals from Lake Lanier and Lake Allatoona, Georgia is violating your contract or otherwise having favorable benefits, do you understand how that can undermine the ability of the Governors of Florida and Alabama to negotiate with the Governor of Georgia?

In other words, if the Governor of Georgia is able to obtain the kind of withdrawal rights he or she would want, they have little incentive, wouldn't you agree, to negotiate some sort of permanent agreement with Florida and Alabama?

General JACKSON. I will attempt to answer that, Senator. We expect any water supply user who has a contract to follow the guidelines set forth in their contract. I don't think I am the right person to determine whether or not Governors could or wouldn't get together to discuss what actions they might take in the future.

Senator SESSIONS. I would sum it up this way. It is hard to have negotiations if we are looking the other way on the withdrawal rates from those two lakes and the Corps of Engineers is allowing Georgia to get a flow larger than they would otherwise be entitled to. It is difficult to have negotiations with Florida and Alabama because otherwise they have gotten what they wanted.

I think you should think about that. Maybe Secretary Darcy, you could comment on that but it is a very real thing. That was explained to me previously as one of the impediments to being able to get an agreement among the States.

Ms. DARCY. Senator, I think because of our ongoing look at the water control manuals and the fact they will not be completed, one of them will not be completed even for public comment until 2 years from now that within those 2 years hopefully the States will be able to come to some agreement because there will not be any finality to any kind of withdrawals between now and then.

Senator SESSIONS. Thank you.

I have a statement for the record from Senator Vitter, the Ranking Member. I also have a letter from Governor Scott of Florida who has been a very strong advocate on this issue and takes it very seriously. The same is true for Congressman Steve Sutherland of Florida. They have both been strong about this issue and are deeply concerned. I would offer statements from both of them for the record.

I would also ask consent to enter the statement from Senator Nelson. He also has been very aggressive on this issue and has discussed legislation and other actions that might occur. I know Senator Nelson is deeply engaged in it.

[The referenced information follows:]

Senator Bill Nelson's Statement for the Record
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
"OVERSIGHT OF ARMY CORPS OF ENGINEERS WATER
MANAGEMENT IN THE APALACHICOLA-CHATTAHOOCHEE-FLINT
(ACF) AND THE ALABAMA-COOSA-TALLAPOOSA (ACT) RIVER
SYSTEMS"

Thank you to Senator Boxer and Senator Session for holding this hearing today. It's important that we continue to have a constructive dialogue on this longstanding issue.

Since 1990, Florida has battled or "litigated against" Georgia and the U.S. Army Corps of Engineers over water that flows south from the Chattahoochee River into the Apalachicola River and Bay. And, we're here today because the most recent 11th Circuit Court decision found in Georgia's favor, which literally leaves Florida's oyster industry out to dry.

A little less than a year ago, it was very clear that there was a major problem in Apalachicola Bay. Historically low water levels brought about by Georgia's excessive consumption combined with the extended drought have caused oysters to die because of higher salinity in the Bay and increased disease and predator intrusion. The commercial and recreational fishing industries that rely on a healthy Apalachicola River and Bay contribute almost \$400 million to the regional economy and directly support 85 percent of the local population. Sufficient freshwater flows are essential for maintaining the salinity regimes needed to sustain an economically viable oyster harvest from Apalachicola Bay, and for sustaining many other commercially viable fisheries.

To date, as a result of the fishery collapse in Apalachicola Bay, over 2,500 jobs were impacted as a result of this disaster. Simply put, a way of life in Apalachicola Bay has been devastated by the lack of fresh water that oysters rely on. Federal and State agencies have joined forces to find solutions to the alleviate the negative impacts on the fisherman, but the primary cause of the disaster – over allocation of the resource and mismanagement of the ACF system by the Corps of Engineers – remains.

There are three different options that could ensure Florida gets more fresh water down to Apalachicola Bay. The first is an administrative approach that does not require legislation and could be implemented as the Army Corps updates the water control manual for the ACF system. During the update to the ACF water control manual, the Corps should be evaluating the cumulative impacts of the current and proposed future water management regimes on the Apalachicola River and Bay, including lost ecosystem services and lost income to commercial fishers

and recreation-based industries. To do so, the Corps could use their existing authority under law to manage the ACF system to preserve fish and wildlife, which has been listed as a specific authorized purpose by the Chief Counsel of the Army Corps. In June 2012, the Corps' Chief Counsel clarified that fish and wildlife conservation is an authorized purpose of the ACF system of projects:

“The system wide plan of development for the ACF basin was intended to provide benefits for the purposes of hydropower, navigation, and flood control, estimated in annual average dollar values, and also to provide benefits for the purposes of municipal and industrial water supply, recreation, and fish and wildlife conservation, which were not quantified in the same manner.”

This determination clarifies that the Corps is required to operate the ACF system to protect and conserve fish and wildlife and the ecological health of the Apalachicola River and Bay. However, this is not currently the case.

Another option would be for Congress to pass legislation that further clarifies that the Army Corps should manage the ACF system to ensure that there are sufficient freshwater flows into the Bay. I've worked on this approach for several years, but we've had little success because of the filibuster threats from the Georgia delegation. We saw this type of threat again this year during the Water Resources Development Act (WRDA) debate. Senator Sessions was even successful in getting language into the base bill during the committee process, but ultimately Georgia's threats prevailed. However, I have to add that even if we only amend the Water Supply Act (as Senator Sessions attempted to do so), it's still not guaranteed that Florida would benefit. Specifically, Senator Session's proposed legislative language that would require congressional approval for re-allocation of >5% of the water in Lake Lanier *may* help bring Alabama, Florida and Georgia to the negotiating table but it will not equalize Florida's negotiating position and it will not ensure that Florida receives the freshwater flows needed to sustain the Apalachicola River and Bay as it had for generations of fishermen in Apalachicola Bay and the Eastern Gulf of Mexico. My amendment to the WRDA bill would require the Corps to provide the freshwater flows needed to sustain the Apalachicola River & Bay and protect jobs for the people and businesses that rely on that system. It will rebalance the system and correct the longstanding problems created by Congress long ago. Because we are the end user or recipient, Apalachicola Bay needs a watershed management approach, which is what my WRDA amendment aimed to do.

The third and most legally binding option would be for the three states to finally agree on allocation in the interstate water compact. A finalized water

compact could allow interstate water conflicts to be resolved in an amicable, efficient, equitable and effective manner. The original compact, Apalachicola-Chattahoochee-Flint (ACF) River Basin Compact, has failed because the compact does not contain an apportionment for each state. We either need a new compact or to finally delegate apportionment for each state in order for this water compact to be effective.

Each of these options has the same underlying theme—Florida and Floridians need to be treated more fairly in the management of the ACF system. Current policies are not working. Problems like this are examples of issues that we should be able to fix if we work together and quit playing politics. The answer should not be for states to harden their positions and increase demand. I'd like to ask my colleagues to commit to work together to find a resolution to this problem.

Again, thank you to Senator Boxer and Senator Sessions for holding this important hearing today. I look forward to working with my Senate colleagues on a permanent solution for Apalachicola Bay.

Senator SESSIONS. Senator Rubio, I understand, is having field hearings in Florida about this subject. He feels strongly about it.

I would share with you that it is a matter that is very important. You are in a very difficult position. I would urge you to make up your mind and just follow the law as it is. I appreciate what I think you are saying, General Jackson, that you are going to comply with the contract because I don't see how we could have a contract with Cobb County and allow it to be systematically violated substantially over a long period of time and then somehow reach an accord with them that Alabama could accept and that is the level of withdrawals that are going to be allowed.

Senator BOOZMAN, thank you for joining us on a Monday afternoon. There are not many in town but we are glad you are here at your post.

Senator BOOZMAN. Thank you.

We appreciate having you all here and appreciate working with you.

General Jackson was in Little Rock and I had the opportunity to work with him very, very closely. He did an outstanding job there and I know he has done an outstanding job at his present post.

It is always good to see you, Secretary Darcy. We do appreciate your hard work.

When you talk to the future, water is always No. 1 or two. Energy and water are the two things that are the drivers. I think this problem, and it really is a problem and not an easy problem at all, but certainly illustrates how important these things are.

We appreciate your having the hearing and shedding further light, Senator. Thank you all.

Senator SESSIONS. As an Alabamian, I think I speak for all Alabamians and the Governor that we understand north Georgia needs water and we can work this out. We have gotten close a couple of times to reaching an agreement.

Then one side or the other wins some lawsuit, the momentum seems to switch and they harden their position. No agreement is reached and usually some lawsuit turns the other way before long. We continue without an agreement. I hope that you will help us facilitate neutrally an agreement.

I would offer for the record an index of organizations and persons who filed comments on the ACF master manual process, including the Alabama Office of Water Resources, Apalachicola Bay Chamber of Commerce, Apalachicola River Keepers and also a document provided by the ACF Stakeholders Group, a diverse group of cities, counties, industries, businesses, fishermen, farmers, environmental, conservation, recreational groups from all three States working together to achieve a common goal.

We also have written comments of the Coosa Alabama Improvement Association submitted to the Army Corps of Engineers Mobile District and written comments recently submitted to the Army Corps by other organizations in Alabama concerned about the ACT master manual. You will have a lot of documents to read.

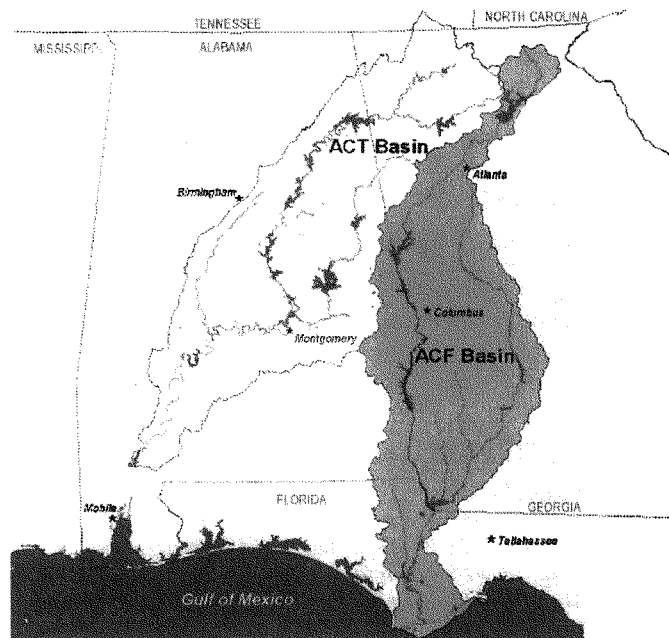
[The referenced information follows:]



**US Army Corps
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Mobile District

FEDERAL STORAGE RESERVOIR CRITICAL YIELD ANALYSES

ALABAMA-COOSA-TALLAPOOSA (ACT) AND APALACHICOLA- CHATTAHOOCHEE-FLINT (ACF) RIVER BASINS



February 2010

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**FEDERAL STORAGE RESERVOIR
CRITICAL YIELD ANALYSES**

EXECUTIVE SUMMARY

**Alabama-Coosa-Tallapoosa and
Apalachicola-Chattahoochee-Flint River Basins**

SCOPE AND PURPOSE

The Federal Storage Reservoir Critical Yield Analyses, Alabama-Coosa-Tallapoosa and Apalachicola-Chattahoochee-Flint Basins (Critical Yield Report) provides information and technical analysis in response to Congressional direction in reports accompanying the Energy and Water Development and Related Agencies Appropriations Act, 2010 (H.R. 3183; Public Law 111-85) which includes the following language:

“Alabama-Coosa-Tallapoosa [ACT], Apalachicola-Chattahoochee-Flint [ACF] Rivers, Alabama, Florida, and Georgia.—The Secretary of the Army, acting through the Chief of Engineers, is directed to provide an updated calculation of the critical yield of all Federal projects in the ACF River Basin and an updated calculation of the critical yield of all Federal projects in the ACT River Basin within 120 days of enactment of this Act.”

Pursuant to this language, the U.S. Army Corps of Engineers (Corps), Mobile District, developed updated critical yields for the Federal projects in the ACF and ACT Basins.

Federal reservoirs in the ACF Basin that are included in these analyses are Buford Dam, West Point Dam, and Walter F. George Lock and Dam (reference Figure 1), because they hold the majority of water storage on the ACF System. George Andrews Lock and Dam and Jim Woodruff Lock and Dam are Federal projects on the ACF System that are excluded from the critical yield analyses. These projects are excluded from the analyses because they are ‘run of river’ impoundments with little or no usable water storage, and cannot significantly contribute to critical yield.

Federal reservoirs in the ACT River Basin that are included in these analyses are Carters Dam and Allatoona Dam (reference Figure 1), because they hold the majority of water storage in the Federal projects on the ACT System. The Carters Dam System consists of two dams: the main dam and a small, downstream dam impounding discharges from the main dam for pump back purposes. Only the main dam is included in the critical yield evaluations. R.F. Henry Lock and Dam, Millers Ferry Lock and Dam and Claiborne Lock and Dam are Federal reservoirs on the ACT System that are excluded from the critical yield analyses. These reservoirs are excluded from the analyses because they are ‘run of river’ impoundments with little or no usable water storage and cannot significantly contribute to critical yield.

Detailed critical yield analyses for the ACF and ACT Basins are presented in separate appendices.

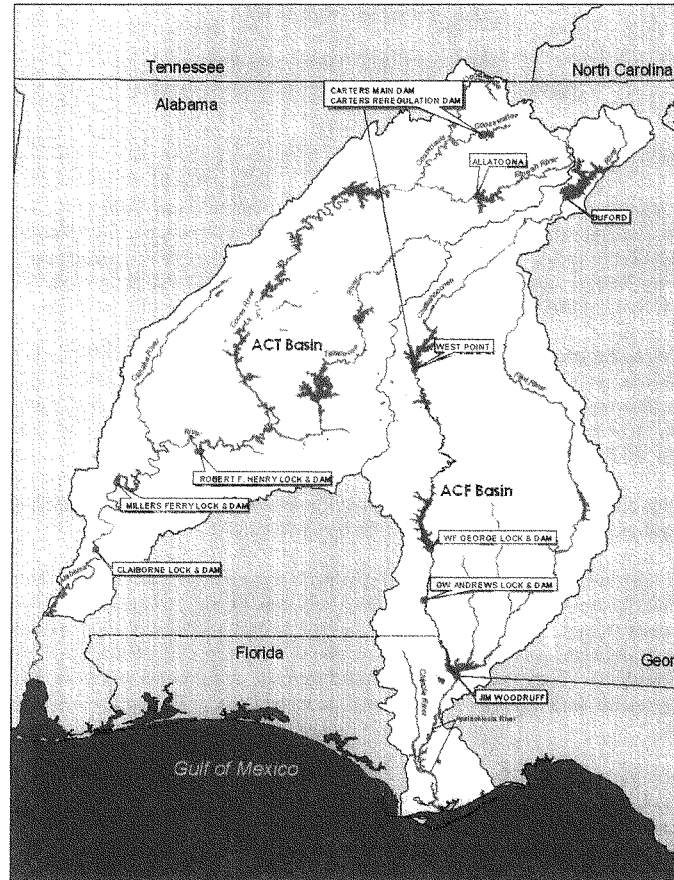


Figure 1. Federal Reservoir Projects in the ACF and ACT Basins

CRITICAL YIELD

Critical yield is the maximum amount of water that can be consistently removed from a reservoir through releases from the dam and/or withdrawals from the reservoir during the most severe drought in the period of record (1939-2008), without depleting the reservoir conservation

storage. Conservation storage is the amount of water available in a reservoir to meet project purposes other than flood control. Critical yield is the amount of water available from a reservoir at any time under any conditions described in the hydrologic period of record. The Corps cannot guarantee critical yield will always be available because future droughts may be worse than droughts of the period of record, requiring more conservative operation of reservoirs.

Critical yield is important because it is the basis from which water stored in a reservoir is allocated to various project purposes. The amount or volume of water stored in a reservoir can be allocated to a specific project purpose, such as hydropower or water supply, based on a percent of critical yield. A change in critical yield could result in modifications of the allocations for a project purpose.

Critical yield can be expressed in cubic feet of water per second (cfs), representing the rate at which water can be removed. Critical yield can also be expressed in millions of gallons per day (mgd) or acre-feet per year (ac-ft/yr), representing the volume of water that can be removed from a reservoir. The conversions between rate and volume are:

$$1 \text{ cfs} = 0.6464 \text{ mgd} = 722.7 \text{ ac-ft/yr}$$

The analyses in this critical yield report to Congress expresses critical yield in cfs.

METHODOLOGY

This section briefly describes how the Corps determined critical yield and crucial datasets that significantly affect analyses results. A more detailed description of this process is provided in Appendix A - Critical Yield Methodology.

Unimpaired Flow Data Set

The unimpaired flow data set is historically observed flows, adjusted for some of the human influence within the river basins. Man-made changes in the river basins influence water flow characteristics and are reflected in measured flow records. Determining critical yield requires removing identifiable and quantifiable man-made changes such as municipal and industrial water withdrawals and returns, agricultural water use, and increased evaporation and runoff due to the construction of Federal surface water reservoirs, from the observed flow measurements.

These quantities are used to extrapolate diversions. The difference between water withdrawn and water returned is defined as a diversion. Diversions are a net volume or quantity assumed to be permanently lost from the water system.

The unimpaired flow dataset is not a perfectly replicated flow dataset representing conditions that would exist without the influence of human activities or a precise measure of natural flow conditions. This is because all human influences, such as land use changes, cannot be accounted for, and many flow set adjustments are estimates based upon assumptions, not direct measurements of the human influences.

The original unimpaired flow data set developed as part of the Alabama-Coosa-Tallapoosa and Apalachicola Chattahoochee Flint (ACT/ACF) River Basins Comprehensive Water Resources Study, ACT/ACF Comprehensive Water Resources Study, Surface Water Availability Volume I: Unimpaired Flow, July 8, 1997 included data at over 50 locations for the 1939 to 1993 period of record. This data set has recently been extended through 2008 and is available from the Corps. Because of the occurrence of negative flows in the daily values, the data has been smoothed using 3-, 5-, or 7-day averaging. This preserves the volume of the flow and eliminates most of the small negative flows in some of the daily flow data.

Droughts

Several drought periods have been identified from the historic record and from previous yield analyses (reference Appendix D – Prior Reports and References). Drought periods were identified in 1940-41; 1954-58; 1984-89; 1999-2003, and 2006-2008. These are shown below in Table 1. Each period is referenced in accordance to the decade or most severe year of occurrence. Critical yield was computed for each of the drought periods and the lowest value selected as the critical yield value for this report.

Table 1. Drought Periods

Drought Periods	Label
1940-1941	1940
1954-1958	1950
1984-1989	1980
1999-2003	2000
2006-2008	2007

Models

A computer simulation model is a computer program that simulates a simplified model of a system. The U.S. Army Corps of Engineers' Hydrologic Engineering Center's (HEC) Reservoir System Simulation (HEC-ResSim) is a computer program comprised of a graphical user interface (GUI) and a computational engine to simulate reservoir operations. HEC-ResSim was developed to aid engineers and planners performing water resources studies by representing the behavior of reservoirs and to help reservoir operators plan releases in real-time during day-to-day and emergency operations.

The HEC-ResSim model has a Firm Yield subroutine which calculates the largest, consistent release that can be reliably supplied during the flow record. The subroutine works by adjusting an operation rule which represents a reservoir management action. The subroutine computes a model simulation run through the period of record with a suggested release toward yield, then recomputes, iterating that release until the largest release that can always be successfully made is found.

The ResSim ACT and ACF yield models include a net precipitation-evaporation rate for each reservoir that utilizes evaporation values developed for National Oceanic and Atmospheric Administration (NOAA) Technical Reports, monthly pan evaporation rates and National

Weather Service (NWS) reports of rainfall and flow rates. The net evaporation losses, evaporation minus precipitation, were computed in inches at the projects. The NOAA report was used because historic monthly evaporation data is not available at the projects. Historic monthly precipitation data was obtained from the NWS.

It is important to be aware that the most severe drought event at one reservoir may not be the most severe drought event at another reservoir in the same river system. For the purposes of computing critical yield on the ACF System, the lowest critical yield value (typically associated with the most severe drought event) at an upstream reservoir will be used to calculate a downstream reservoir's critical yield. This is because on the ACF System, the amount of water exiting an upstream reservoir influences the amount of water available in a downstream reservoir. This is germane to Methods A and B described below.

Method A (Without Diversions)

Method A assumes that there are no withdrawals from or returns to the lake and there are no withdrawals from or returns to the river as it flows between projects. This condition results in the maximum yield possible from the Federal projects. Critical yield from an upstream reservoir is assumed to be permanently removed from the system and does not contribute to the inflow at downstream reservoirs.

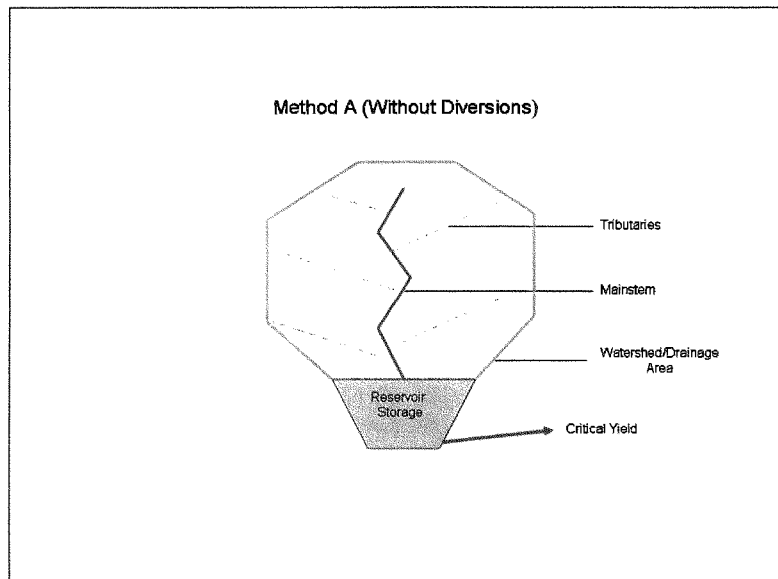


Figure 2. Critical Yield Method A (Without Diversions)

Method B (With Diversions)

Method B assumes net river withdrawals and returns are occurring; this method does not include withdrawals from the Corps reservoirs. Critical yield from an upstream reservoir is assumed to be permanently diverted from the system and does not contribute to the inflow at downstream reservoirs. This condition results in the most severe downstream impact. The results of Method B represent a conservative assessment of the critical yield available from Federal projects controlled by the Corps of Engineers. Method B used the most severe drought events documented during the hydrologic period of record and the year of maximum river withdrawals (2006 for the ACT; 2007 for the ACF) to make the calculations.

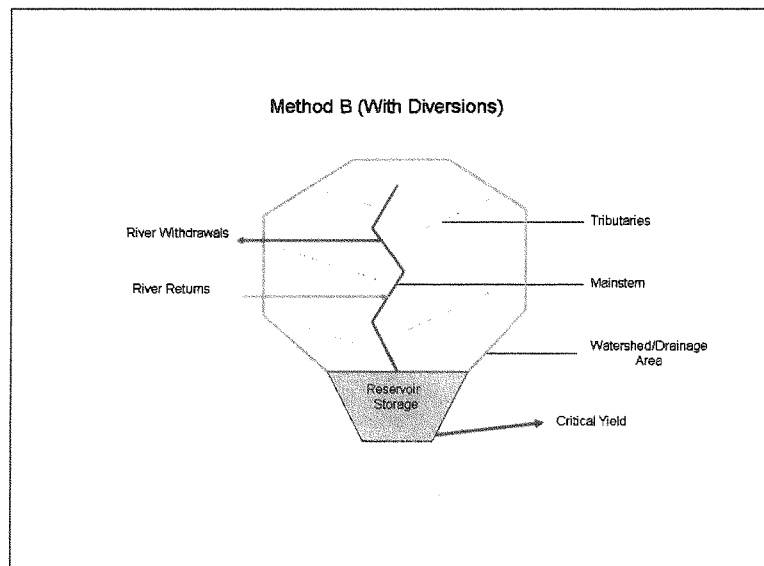


Figure 3. Critical Yield Method B (With Diversions)

Method C (River System Yield)

Method C computes a system yield for diversion from the most downstream storage reservoir. It assumes upstream reservoirs operate in tandem to maximize the critical yield at the most downstream reservoir. Method C computes critical yield for the ACF River System with and without net river withdrawals. The with net river withdrawals condition results represent the Corps' yield. The without net river withdrawals condition results represent the system theoretical maximum yield. Method C calculates the theoretical critical yield that might be observed if the upstream projects were operated solely to maximize yield at Walter F. George Lake. However, in reality the results could not be achieved because the Corps must operate in a balanced manner to achieve all authorized project purposes.

ACT critical yields are computed using only Methods A and B. This is because both Carters Dam and Allatoona Dam operate independently and do not influence water availability at the other reservoir.

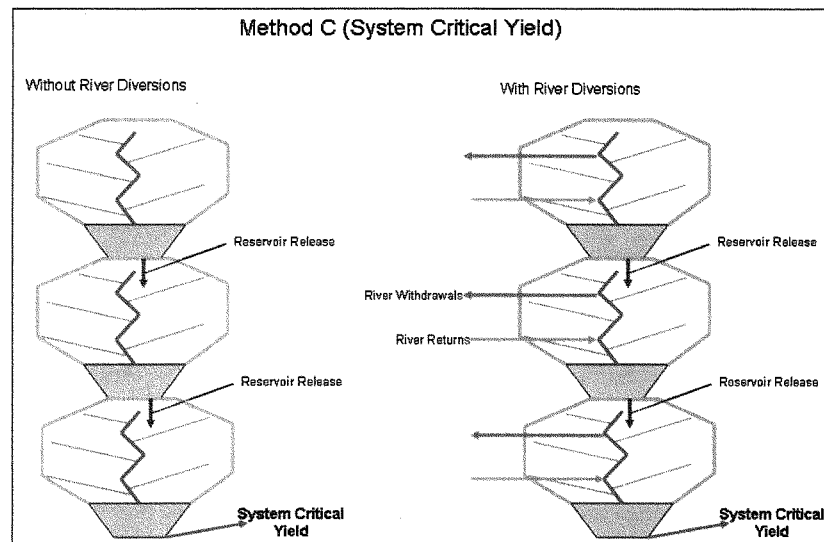


Figure 4. Critical Yield Method C (River System Yield)

Assumptions

Assumptions made for the critical yield analysis are listed below.

1. There is no attempt to address the probability that droughts more severe than those in the period of record may or may not occur.
2. The simulation model was operated only for critical yield. No other operating purposes were included. The critical yield represents the maximum flow that could be continuously provided to meet any, or all, demands (e.g., project purposes).
3. The upstream reservoir is the primary reservoir and its yield is met (maximized) before proceeding downstream. This is because upstream users can consumptively divert water, precluding the availability of water yield to a downstream user. Maximizing the yield of the upstream reservoir is consistent with current state-issued water withdrawal permits and may not apply in other regions of the United States. This is significant on the ACF only, since the ACF projects are operated in tandem.

4. Yield analysis is based on currently authorized conservation storage elevations.
5. Projects are full at the beginning of the drought period simulation. The pool level at the beginning of a drought simulation is important because it is a variable that directly affects the quantity or volume of water available as critical yield.
6. None of the critical yield is returned to the system. Critical yield is permanently diverted from the system and assumed to be consumptively used. For example: Buford Dam critical yield is not counted as inflow to West Point Lake. Inflows to West Point Lake are assumed to derive only from the West Point Lake drainage basin. This methodology determines the conservative individual project yield. The assumption is applicable to Methods A and B. The assumption is not applicable to Method C.
7. Existing area capacity curves as shown in the latest water control manuals were used.

CRITICAL YIELD ANALYSES RESULTS

A summary of model results is presented below for each basin. A more detailed description of basin-specific methods, modeling and results is presented in the Appendix B - ACT Basin and Appendix C - ACF Basin.

ACF Basin

Tables 2 and 3 list the critical yield of each federal reservoir on the ACF System and the critical drought period used in the calculations.

Table 2. Method A, ACF Project Yield (Without Diversions)

Project	Critical Yield (cfs)	Critical Drought
Buford Dam	1,465	1980
West Point Dam	1,167	2007
Walter F. George Lock and Dam	572	2007

The ACF River System diversions are municipal, industrial and agricultural withdrawals and returns from the Chattahoochee River and its tributaries located upstream of Lake Sidney Lanier, West Point Lake and Walter F. George Lake. Maximum river withdrawals occurred in 2007 and are reflected in the critical yield calculation for each drought period. Computation of Method A, ACF Project Yield (Without Diversions) did not include these withdrawals.

Table 3. Method B, ACF Project Critical Yield (With Diversions)

Project	Critical Yield (cfs)	Critical Drought	Critical Yield Reduction Attributable To Diversions
Buford Dam	1,460	1980's	0.4%
West Point Dam	891	2007	24%
Walter F. George Lock and Dam	470	2007	18%

Comparing the critical yield results from the Method A (Without Diversions) and Method B (With Diversions) allows us to quantify the impacts of the river withdrawals. The 2007 river withdrawals had a measurable impact, reducing critical yield as much as 23 percent at West Point and 17 percent at Walter F. George.

Table 4 below lists the Method C (River System Yield) results of operating the three ACF reservoirs together for a system yield at Walter F. George. When all reservoirs are operated for yield optimization at Walter F. George, the system yield obtained is greater than the sum of the individual reservoir yields.

Method C (River System Yield) was computed with and without river diversions. The 2007 river diversions reduce the critical yield at Walter F. George by 16 percent. This figure represents the percentage difference between 4,370 cfs (ACF System Without Divisions) and 3,683 cfs (ACF System With Diversions).

Table 4. Method C, ACF (River System Yield)

Project	System Critical Yield (cfs)	Critical Drought
ACF System (Without Diversions)	4,370	2007
ACF System (With Diversions)	3,683	2007

ACT Basin

Tables 5 and 6 list the critical yield of each project and the critical drought period used in the calculations.

Table 5. Method A, ACT Project Critical Yield (Without Diversions)

Project	Critical Yield (cfs)	Critical Drought
Allatoona Dam	729	2007
Carters Dam	390	2007

The ACT River System diversions are municipal, industrial and agricultural withdrawals and returns from the Coosawattee River and its tributaries upstream of Carters Lake and from the Etowah River and its tributaries upstream of Allatoona Lake. Maximum diversions occurred in 2006 and are reflected in the critical yield calculation for each drought period.

Table 6. Method B, ACT Project Critical Yield (With Diversions)

Project	Critical Yield (cfs)	Critical Drought	Critical Yield Reduction Attributable To Diversions
Allatoona Dam	693	2007	4.9%
Carters Dam	387	2007	0.8%

Comparing the yield results from the Method A (Without Diversions) and Method B (With Diversions) allows us to quantify the impacts of the river withdrawals. The 2006 river diversions have a measurable impact on the critical yield, as much as five percent at Allatoona Lake (reference Table 5).

SUMMARY

The results of Method B (With Diversions) (reference Tables 3 and 6) for both basins represent a realistic assessment of the critical yield from Federal projects controlled by the Corps.

Historical critical yield determinations are referenced in Appendix D - Prior Reports and References. The reader should be cautioned that there is not a direct correlation between the finding of historical critical yields and the findings of this Critical Yield Report. This is due to differences in the drought periods used in each set of analyses and methods employed to calculate the critical yield.

Senator SESSIONS. Is there anything else you would like to share before we move to the next panel?

Ms. DARCY. No, but thank you, Senator, for this hearing.

Senator SESSIONS. Thank you all and I appreciate the opportunity to ask these questions.

We will now have the second panel: J. Brian Atkins, Division Director, Alabama Office of Water Resources; Judson H. Turner, Director, Environmental Protection Division, Georgia Department of Natural Resources.

You are a Bradley Arant attorney, Mr. Turner, previously?

Mr. TURNER. Previously, yes, sir.

Senator SESSIONS. I will have to be careful asking you any questions.

We also have Mr. Gregory Munson, Deputy Secretary, Water Policy and Ecosystem Restoration, Florida Department of Environmental Protection.

Gentlemen, if you would share your comments with us at this time, we would be pleased to receive them.

**STATEMENT OF J. BRIAN ATKINS, DIVISION DIRECTOR,
ALABAMA OFFICE OF WATER RESOURCES**

Mr. ATKINS. Thank you, Senator Sessions.

Senator Sessions and members of the Committee, the State of Alabama believes it is vital for Congress to retain its authority under the Water Supply Act of 1958 to approve any substantial reallocation of Federal reservoirs for local water supply uses.

Alabama is keenly interested in this issue because it is downstream from major Federal reservoirs in the Alabama-Coosa-Tallapoosa River Basin, also known as the ACT River Basin, and the Apalachicola-Chattahoochee-Flint River Basin, also known as the ACF Basin.

Increasing use of those reservoirs to serve local water supply needs in the Atlanta leads to lower downstream flows in both basins. Those lower flows inflict substantial environmental and economic damage on Alabama communities and Alabama citizens.

Lake Allatoona in the ACT Basin and Lake Lanier in the ACF Basin were both constructed in north Georgia in the middle part of the 20th Century for three primary purposes: flood control, hydropower generation and downstream navigation support. These purposes are legislatively mandated in the bills authorizing construction of the reservoirs.

As the Atlanta metropolitan area has grown, water supply providers in that region have failed or refused to construct their own water supply reservoirs and thus avoided expending hundreds of millions of dollars in construction costs. Instead, providers in the Atlanta metropolitan area have made massive withdrawals from the Federal reservoirs and the Corps has allowed these withdrawals.

In doing so, the Corps has bypassed the required congressional approval. In the Water Supply Act of 1958, Congress expressly recognized that the obligation to meet water supply needs rests primarily with the State and local governments. While Congress in that Act contemplated some limited use of Federal reservoirs for water supply, Congress expressly reserved the right to approve any

water supply usage that would involve major operational changes or cause serious effects to the authorized project purposes.

Rather than go through the appropriate congressional process to seek permission for water supply usage at Lake Allatoona and Lake Lanier, Atlanta area interests have simply taken water without any legal authority to do so. It has been a take first, seek permission later mindset and much to the dismay of Alabama, the Corps of Engineers has been complicit in this improper water grab by taking no steps to curtail the unauthorized use of Federal resources.

It is even worse than that. Not only has the Corps failed to prevent the massive and illegal water supply uses of these two Federal reservoirs, but the Corps also has taken steps to curtail operation of the projects for their congressionally authorized purposes in order to protect Georgia's water supply usage at the expense of the downstream States, Alabama and Florida.

Furthermore, the Corps has given a pass to Atlanta's contractual violation of the water storage agreements and permitted excess water storage in violation of its agreements and of the Water Supply Act. The results of this course of conduct have imposed serious costs and harm on downstream communities which were most severe during the 2007 drought.

Water quality in Alabama lakes and river segments deteriorated badly. Local Alabama water supply providers had to incur huge costs to treat the degraded water in order for it to be fit for public consumption. Levels of Alabama reservoirs dropped sharply inflicting major economic damage on Alabama's recreation industry.

Numerous industrial plants were threatened with shut down because it became more and more difficult for those companies to meet their environmental permit requirements as a result of the degraded water in the rivers. The electric grid in Alabama was also threatened due to those types of environmental permit issues.

What is happening is crystal clear. Georgia wants Alabama to take less water than it has always received historically so that Atlanta may take more water in order that Atlanta may expand at the expense of downstream communities and without regard to the ecological effect.

If Alabama simply wants to maintain its historical usages and flows, then it will have to spend hundreds of millions of dollars on infrastructure so Atlanta does not have to pay for its own development.

Congress clearly understands that many Federal reservoirs sit in basins that cover multiple States. The need for congressional approval of significant water supply uses of Federal reservoirs is vital to ensure that a proper balance is struck.

Upstream communities should not be allowed to disrupt settled usages and expectations of downstream communities through unauthorized and improper usage of Federal reservoirs built with Federal taxpayer dollars.

Senator Sessions, members of the Committee, the Corps and Atlanta have ignored the plain language of the Water Supply Act that would have required congressional approval for the water grab that has taken place. Alabama urges this Committee to strengthen the language of the Water Supply Act so that Congress' proper role in

controlling local water supply uses of Federal reservoirs is maintained.

Thank you.

[The prepared statement of Mr. Atkins follows:]

OFFICE OF THE GOVERNOR

ROBERT BENTLEY
GOVERNOR



STATE OF ALABAMA

ALABAMA DEPARTMENT OF ECONOMIC
AND COMMUNITY AFFAIRS

JIM BYARD, JR.
DIRECTOR

UNITED STATES SENATE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

TESTIMONY OF J. BRIAN ATKINS
DIVISION DIRECTOR
ALABAMA OFFICE OF WATER RESOURCES
A DIVISION OF THE
ALABAMA DEPARTMENT OF ECONOMIC AND COMMUNITY AFFAIRS



JULY 22, 2013

3:00 PM – DIRKSEN SENATE OFFICE BUILDING, ROOM 406

Madam Chairman and Members of the Environment and Public Works Committee, thank you for the opportunity to testify before you today. My name is Brian Atkins and I am the Division Director of the Alabama Office of Water Resources which is a division of the Alabama Department of Economic and Community Affairs.

The State of Alabama believes it is vital for Congress to retain its authority under the Water Supply Act of 1958 to approve any substantial reallocation of federal reservoirs for local water supply uses. Alabama is keenly interested in this issue because it is downstream from major federal reservoirs in the Alabama-Coosa-Tallapoosa River Basin, also known as the ACT Basin, and the Apalachicola-Chattahoochee-Flint River Basin, also known as the ACF Basin. Increasing use of those reservoirs to serve local water-supply needs in the Atlanta area leads to lower downstream flows in both basins. Those lower flows inflict substantial environmental and economic damage on Alabama communities and Alabama citizens.

Lake Allatoona in the ACT Basin and Lake Lanier in the ACF Basin were both constructed in north Georgia in the middle part of the 20th Century for three primary purposes—flood control, hydropower generation, and downstream navigation support. These purposes are legislatively mandated in the bills authorizing construction of the reservoirs. However, as the Atlanta metropolitan area has grown, water-supply providers in that region have failed or refused to construct their own water-supply reservoirs, and thus, avoided expending hundreds of millions of dollars in construction costs. Instead, providers in the Atlanta metro area have made massive withdrawals from the federal reservoirs and the Corps has allowed these withdrawals. In doing so, the Corps has bypassed the required Congressional approval.

In the Water Supply Act of 1958, Congress expressly recognized that the obligation to meet local water-supply needs rests primarily with State and local governments. While Congress in that act contemplated some limited use of federal reservoirs for water supply, Congress expressly reserved the right to approve any water-supply usage that would involve major operational changes or cause serious effects to the authorized project purposes.

Rather than go through the appropriate Congressional process to seek permission for water-supply usage at Lake Allatoona and Lake Lanier, Atlanta-area interests have simply taken water without any legal authority to do so. It has been a “take first, seek permission later”

mindset. And much to the dismay of Alabama, the Corps of Engineers has been complicit in this improper water grab by taking no steps to curtail the unauthorized use of federal resources.

But it is even worse than that. Not only has the Corps failed to prevent the massive and illegal water-supply uses of these two federal reservoirs, but the Corps also has taken steps to curtail operation of the projects for their congressionally authorized purposes in order to protect Georgia's water supply usage at the expense of the downstream states, Alabama and Florida. Further, the Corps has given a pass to Atlanta's contractual violation of the water storage agreements, and permitted excess water storage in violation of its agreements and of the Water Supply Act. The results of this course of conduct have imposed serious costs and harm on downstream communities, which were most severe during the 2007 drought. Water quality in Alabama lakes and river segments deteriorated badly. Local Alabama water-supply providers had to incur huge costs to treat the degraded water in order for it to be fit for public consumption. Levels of Alabama reservoirs dropped sharply, inflicting major economic damage on Alabama's recreation industry. Numerous industrial plants were threatened with shutdown because it became more and more difficult for those companies to meet their environmental permit requirements as a result of the degraded water in the rivers. The electric grid in Alabama was also threatened due to those types of environmental permit issues.

What is happening is crystal clear. Georgia wants Alabama to take less water than it has always received historically so Atlanta may take more water in order that Atlanta may expand at the expense of downstream communities and without regard to the taking's ecological effect. If Alabama wants to simply maintain its historical usages and flows, then it will have to spend hundreds of millions of dollars on infrastructure so Atlanta does not have to pay for its own development.

Congress clearly understands that many federal reservoirs sit in basins that cover multiple states. The need for congressional approval of significant water-supply uses of federal reservoirs is vital to ensure that a proper balance is struck. Upstream communities should not be allowed to disrupt settled usages and expectations of downstream communities through unauthorized and improper usage of federal reservoirs built with federal taxpayers' dollars.

Madam Chairman, the Corps and Atlanta have ignored the plain language of the Water Supply Act that would have required congressional approval for the water grab that has taken place. Alabama urges this committee to strengthen the language of the Water Supply Act so that Congress's proper role in controlling local water-supply uses of federal reservoirs is maintained.

Environment and Public Works Committee Hearing
July 22, 2013
Response to Follow-Up Questions for Written Submission for
J. Brian Atkins, P.E., Division Director,
Alabama Office of Water Resources

Question:

1. At the Committee's hearing on July 22, 2013, Judson Turner of the Georgia Environmental Protection Division testified that "metro Atlanta's use has almost no effect at all on the flow into Alabama and Florida." Does Alabama agree with that assessment?

Response:

Alabama strongly disagrees with Mr. Turner's erroneous assertion. Net consumptive use by Georgia has a substantial adverse impact on flows into Alabama in both the ACF Basin and the ACT Basin. These impacts are especially pronounced in the drier months of the year and during drought periods. The Supreme Court of the United States has long held that, in determining whether one State is taking more than its fair share of water in a basin, the "critical matter" is "when water is most needed." *Colorado v. Kansas*, 320 U.S. 383, 396-97 (1943). In seeking to diminish the significance of Georgia's consumption on the flows into Alabama, Mr. Turner relied on long-term annual averages. Because those types of long-term averages include flows during flood periods and thus mask the magnitude of the impact when water is most needed, the Supreme Court has held that such long-term averages are "not helpful in ascertaining the dependable supply of water." *Id.* at 397.

Attached is a detailed analysis by Alabama's Office of Water Resources concerning the actual impact that Georgia's net consumption has on flows into Alabama in both basins. I provide a short summary of that analysis below.

In the ACF Basin, Georgia's net consumption has reduced monthly flow during drought periods by more than 25% in the months of May through November, with the peak historical flow reduction exceeding 30% in the month of August. Thus, Mr. Turner's testimony, which claimed that the effect of Georgia's consumption was a mere 1% reduction in flows, was more than 25 times too low. Even if we use Mr. Turner's flawed method of looking at an average of all years (which would include flood years), the average reduction in flows for the months of May through October still exceeds 10%, which is 10 times higher than Mr. Turner claimed.

In the ACT Basin, Georgia's net consumption has also caused major, inappropriate reductions in flows into Alabama. For the months of August through October, Georgia's net consumption during drought periods has caused a reduction of more than 20% in flows into Alabama. Mr. Turner claimed in his testimony that the effect was only 1.2%, so the actual effect has been more than 16 times higher.

As our attached report also shows, Georgia's consumption figures affect the downstream flow in an additional substantial manner. As Georgia's net consumption has skyrocketed over the last few decades, the Corps has responded by making lesser releases of the inflows from the upstream federal reservoirs in both basins. This magnifies the flow reduction into Alabama.

The lower flows into Alabama have serious environmental and economic consequences. The lower flows lead to diminished water quality, which places undue stress on the environment, especially in drought periods. The diminished water quality not only threatens living organisms, but it also increases costs for water-supply providers in Alabama to treat water so that it can be drinkable. The diminished water quality also makes it difficult for existing Alabama industries to meet their discharge permits, and it impedes Alabama's ability to attract new economic development. The lower flows also reduce river and lake levels in Alabama, which inflicts major damage on Alabama's recreational industry. Additionally, the lower flows reduce the amount of clean-energy hydropower that can be generated in Alabama, and the lower flows have severely limited navigation from Alabama ports in both river basins.

Question:

2. At the Committee's hearing on July 22, 2013, Brigadier General Jackson testified that the 2011 decision by the Eleventh Circuit Court of Appeals had determined that water supply is an authorized purpose of Lake Lanier, and General Jackson did not understand there to be any difference in the court's analysis between releases from Lake Lanier for downstream water supply and direct withdrawals from Lake Lanier for water supply. Does Alabama understand that the Eleventh Circuit drew a distinction in its authorized-purpose analysis between those two types of water-supply use of Lake Lanier?

Response:

The Eleventh Circuit expressly drew a distinction between two types of water supply at Lake Lanier in its decision in *In re MDL-1824 Tri-State Water Rights Litigation*, 644 F.3d 1160 (11th Cir. 2011). One type of water-supply use of Lake Lanier is through increased releases from the dam to meet downstream water-supply needs. The second type of water-supply use of Lake Lanier is through direct withdrawals from the reservoir, which means the withdrawn water never passes through the turbines in the dam and thus generates no hydroelectric power.

Although the Eleventh Circuit concluded in its opinion that Congress in authorizing Lake Lanier in the Rivers and Harbors Act of 1946 (RHA) intended water supply to be an authorized purpose of the project, the court limited that holding to the first type of water supply. The court expressly stated that "the only way that the RHA mentions for ensuring the water supply of the Atlanta area is by means of increasing releases from the dam for the purpose of downstream withdrawals." *Id.* at 1200 n.35. The court also acknowledged the Corps' consistent position concerning its "lack of authority under the RHA to provide direct withdrawals." *Id.* To make the fact that its ruling in the case about water supply being an authorized purpose did not extend to direct withdrawals, the court stated that "we express no opinion on whether the RHA could be construed to provide authorization for the Corps to satisfy the authorized water supply purpose,

not only by increasing releases for downstream withdrawal, but also by direct withdrawals from the reservoir.” *Id.*

In light of those statements by the Eleventh Circuit, Brigadier General Jackson was mistaken in his understanding that the court had drawn no distinction between the two types of water supply. Alabama submits that the Corps’ longstanding position that Congress did not intend direct withdrawals for water supply to be an authorized purpose of Lake Lanier is plainly correct and should not be changed.

Question:

3. Are there any other matters that Alabama believes are important for the Committee to consider in connection with its oversight of the Corps of Engineers’ operations in the ACF Basin and the ACT Basin?

Response:

The testimony presented at the Committee’s hearing and the documents submitted for the record present a full picture of the Corps’ flawed and illegal operations in the ACF Basin and the ACT Basin. In the ACT Basin, the Corps has documented multiple exceedances by an Atlanta-area entity of its contractual limits for water-supply use of Lake Allatoona, but the Corps takes no action to enforce its own contract. In the ACF Basin, Atlanta-area entities have made direct withdrawals from Lake Lanier with no legal authority to do so since 1990, yet the Corps again takes no action to stop these illegal uses of Lake Lanier. By taking no action to stop this illegal use of federal reservoirs in both basins, the Corps has doomed any chance at an agreement among the three States—Georgia has no incentive to make any material compromises when the Corps allows that State to take whatever it wants without any adverse consequences.

Respectfully submitted,



J. Brian Atkins, P.E.
Division Director
Alabama Office of Water Resources

**Analysis of Georgia's Consumptive
Water Use on Flows Into Alabama**

**for the
U.S. Senate Environment and Public
Works Committee**



August 21, 2013

Question from the Committee to Brian Atkins:

At the Committee's hearing on July 22, 2013, Judson Turner of the Georgia Environmental Protection Division testified that "metro Atlanta's use has almost no effect at all on the flow into Alabama and Florida." Does Alabama agree with that assessment?

Excerpt from Judson Turner's Hearing Testimony:

At the hearing, Judson Turner testified:

Per capita water consumption in the metropolitan Atlanta area is less than per capita water use in Montgomery, in Mobile, in Birmingham and in Tallahassee. The metropolitan Atlanta's total consumption of water from Lake Lanier and the Chattahoochee River in 2011 was a net 171 cfs. That is less than 1 percent of the average flow in the Apalachicola River at the state line in a normal year and less than 2 percent of that flow in a drought year.

In the ACT Basin, the metro Atlanta water consumption is around 1.2 of the average flow at the Coosa River at the state line and around one-half of 1 percent if you measured the flow at the Alabama River.

The facts are that metro Atlanta's use has almost no effect at all on the flow into Alabama and Florida.

Answer to Committee's Question:

No, Alabama does not agree with Mr. Turner's assessment. Mr. Turner's comments grossly understate the impact of Georgia's consumptive water use on the flows into the State of Alabama in the Apalachicola – Chattahoochee – Flint (ACF) Basin and the Alabama – Coosa – Tallapoosa (ACT) Basin.

The analysis referenced by Mr. Turner in his comments is flawed in the following ways:

1. Mr. Turner compares water-use data to long-term average flow values. The use of long-term average flows virtually guarantees that the effects of water use on flows into Alabama will be masked. Just a few high flow events (that only occur for 1 or 2 days in a year) can mask several months of low flows if one only looks at a long-term average. Instead of using long-term average flows to evaluate consumptive-use impacts, an analysis should examine effects during more limited periods, such as critical low flow periods and droughts. A fair assessment of the consumptive-use impacts during a severe drought, such as the one that occurred in 2007, simply cannot be made through use of long-term averages. An appropriate analysis must focus on the critical periods when flows are lowest. These are the periods when downstream states experience the highest impact of upstream water use.
2. Mr. Turner only included a limited portion of the Georgia's consumptive water use above Alabama in his analysis. In order to describe the effects of Georgia's consumptive water use on Alabama, one must compare all of Georgia's consumptive use to the flows entering Alabama.
3. Mr. Turner failed to address the fact that as Georgia's consumptive water use has increased, the Corps has altered its operations to release less water from Lake Lanier and Lake Allatoona, which further diminishes downstream flows in the two basins.

4. Concerning the ACF Basin, Mr. Turner compares water use data to flows in the Apalachicola River. The effects on Alabama are felt further upstream where the Chattahoochee River enters Alabama upstream of West Point Lake in Georgia.

In order to better demonstrate the effects of Georgia's consumptive water use on flow entering Alabama, an analysis was performed to properly compare the consumptive water use occurring in Georgia with the flows entering Alabama. As mentioned above, for the purposes of evaluating the effects of Georgia's consumptive use in the ACF Basin on Alabama, it is more appropriate to compare the water use with flows occurring further upstream on the Chattahoochee River. Since the Chattahoochee River crosses into Alabama in the West Point Lake pool, Alabama compared the Georgia water use to the flows at the USGS gage upstream of West Point Lake. That gage, is the most appropriate place to evaluate the effects of Georgia's water use on the flows entering Alabama in the ACF Basin.

For the ACT Basin, Alabama compared the Georgia consumptive water use to the flows at the nearest USGS gage to the state line on the Coosa River. This location, Mayo's Bar, is located near Rome, Georgia and has been historically used to evaluate the effects of flows entering Alabama in the ACT Basin.

In performing its analysis, Alabama compared the net consumptive water use occurring in Georgia above the Alabama state line to the flows observed at the USGS gaging stations referenced above. Specifically, the analysis contains a comparison of the actual monthly net consumption of water upstream from Whitesburg, Georgia USGS gage with the flows at the gage. The same analysis was performed for the net consumption and flows upstream from the Rome, Georgia USGS gage.

As will be demonstrated below, the analysis shows that in the ACF Basin, Georgia's net consumption has reduced monthly flow during drought years by more than 25% in the months of May to November, with the peak historical flow reduction exceeding 30% in the month of August. Thus, Mr. Turner's testimony, which claimed that the effect of Georgia's consumption was a mere 1% reduction in flows, was 25 times too low. Even if we use Mr. Turner's flawed method of looking at an average of all years (which would include flood years), the average reduction in flows for the months of May to October still exceeds 10%, which is 10 times higher than Mr. Turner claimed.

The analysis also shows that in the ACT Basin, Georgia's net consumption has also caused major, inappropriate reductions in flows into Alabama. For the months of August through October, Georgia's net consumption during drought periods has caused a reduction of more than 20% in flows into Alabama. Mr. Turner claimed in his testimony that the effect was only 1.2%, so the actual effect has been more than 16 times higher.

The analysis also includes an observation of how the Corps of Engineers' has reduced releases at Lake Lanier and Lake Allatoona over time as Georgia's use of water from those reservoirs has increased.

Comparison of Actual Consumptive Use to Flows at Whitesburg, Georgia

To evaluate the effects of Georgia's consumptive water use on the flows entering Alabama from the Chattahoochee River, the net consumptive demands were compared to the flows at the Whitesburg, Georgia USGS gaging station. This USGS gaging station is numbered 02338000 and labeled "Chattahoochee River Near Whitesburg, GA". This Whitesburg gage represents the flow from 2,430 square miles of the upper Chattahoochee River Basin. The Whitesburg gage location was selected for this analysis as it is the last USGS gaging station prior to the Chattahoochee River entering Alabama. The Chattahoochee River enters Alabama in the West Point Lake pool. The location of the Whitesburg gage can be seen in Figure 1 which is a schematic of the ACF River Basin. A larger version of this schematic is shown in Appendix A. This figure also shows the locations of the upstream nodes used in the Corps of Engineers modeling and data development for the ACF River Basin. Flow and consumptive water use data were developed by the Corps of Engineers for use in its surface water modeling of the ACF Basin.

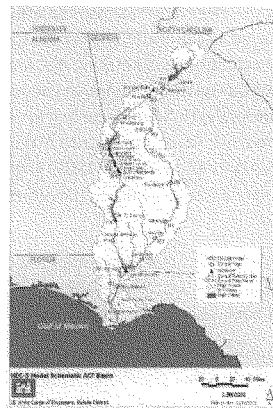


Figure 1 – ACF Basin Schematic

Alabama had access to monthly net consumptive water use values for the nodes shown in Figure 1. Water use data was provided by each state for the development of the unimpaired flow data set used by the U.S. Army Corps of Engineers. On August 19, 2009, via an email from James Hathorn, the Corps of Engineers provided water use data to the states of Alabama, Florida and Georgia. The consumptive water use data provided by the Corps of Engineers is shown in Appendix A. The monthly net consumptive water use data was provided for the 1994 – 2007 period.

The USGS web site contains historic data for the Whitesburg gage. For the purposes of this analysis, Alabama downloaded the average monthly flow data for the period of January 1, 1975 through September 30, 2012. The average monthly flow data for the Whitesburg gage is shown in Appendix B.

Since Alabama only had access to actual monthly water use data for the 1994 – 2007 period, that is the period selected for the comparison of consumptive use and flow. It should be noted that the 1994 – 2007 period contains two significant drought periods.

The average monthly consumptive use for the nodes upstream of Whitesburg (217, 220, 221, 222, and 225) was extracted from the "Reach_Net (CFS)" sheet of the "GA_ACF-Chatt_1994-2007.xls" worksheet provided by the Corps of Engineers. These values were then summed to get the combined net consumptive use upstream of Whitesburg, GA for each month of the 1994 – 2007 period. These consumptive use values were then compared to the average monthly flow at the Whitesburg gage. The monthly consumptive use was divided by the monthly flow to produce a consumptive use to flow ratio for each month. These calculations are shown in Appendix C.

The data contained in Appendix C shows that for the 1994 – 2007 period the monthly average flows at Whitesburg range from a low of 1,067 cfs to a high of 11,190 cfs with a long term average of 3,697 cfs. Likewise the monthly average net consumptive Georgia water use upstream of Whitesburg range from a low of -10 cfs to a high of 467 cfs with a long term average of 208 cfs.

A graph of the monthly consumptive use to flow ratios is shown in Figure 2 below. The blue line in the following graph is a plot of the monthly consumptive use to flow ratio values from Appendix C. The x-axis of the following graph represents time ranging from January 1994 to December 2007 and the y-axis is the consumptive use to flow ratio described above.

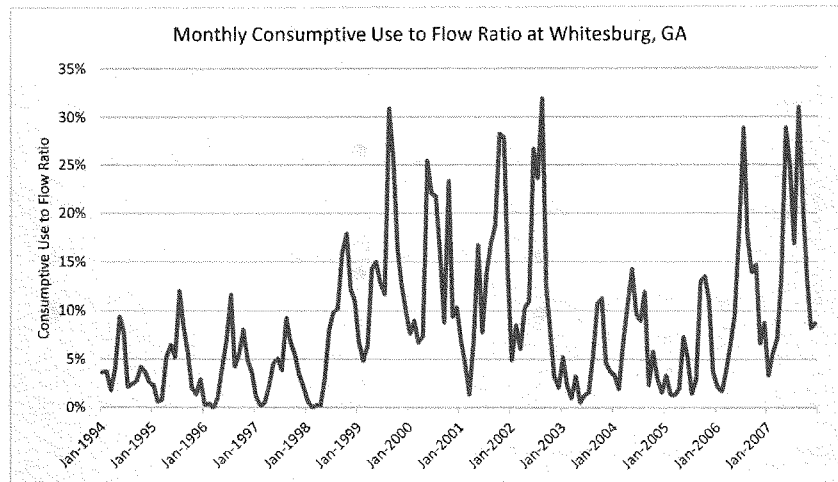


Figure 2 - Graph of Consumptive Use to Flow Ratio at Whitesburg, GA

The above graph shows that the effect of Georgia's consumptive use on flows entering Alabama varies over the 1994 – 2007 period. The graph also shows that the ratio of consumptive use to flow is greater during the drier periods such as the droughts of 1999 – 2002 and 2006 – 2007.

The monthly ratio of consumptive use to flow exceeded 30% three times during the 1994 – 2007 period with a maximum of 32%. In other words, during the peak month with everything else being equal, the flow entering Alabama would have been 32% greater if Georgia had not consumed water. Further analysis of this data shows that the monthly consumptive use to flow ratio exceeded 25% ten times during the analysis.

To gain a better understanding of how the consumptive water use compares to flow entering Alabama during different seasons of the year, the data was sorted by month to compare the monthly statistics of the calculated ratios. The graph shown in Figure 3 is a plot of two monthly statistics calculated from the data contained in Appendix C. The x-axis represents time, ranging from January to December, and the y-

axis is the monthly consumptive use to flow ratio (%). The two different data sets plotted on Figure 3 are:

- The average consumptive use to flow ratio for each month. For example, the value of 4% for January was calculated by averaging the fourteen January values for the 1994 – 2007 period. The average ratio by month is represented by the blue dots with the title “Average”.
- The maximum consumptive use to flow ratio for each month. For example, the value of 8% for January represents the highest monthly consumptive use to flow ratio for the month of January for the 1994 – 2007 period. The maximum ratio by month is represented by the red dots with the title “Maximum”.

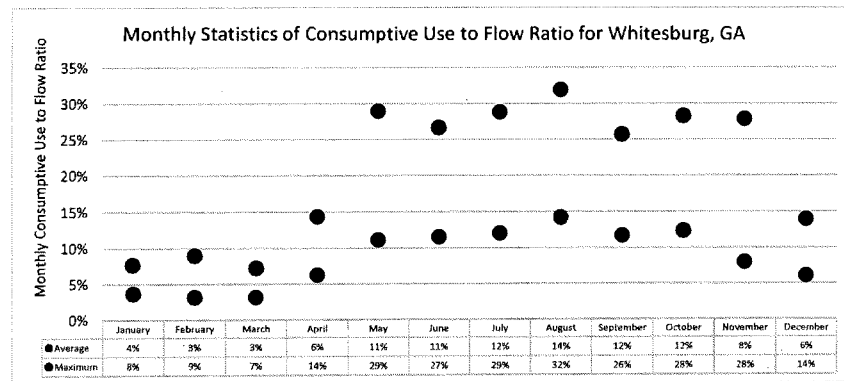


Figure 3 - Graph of Consumptive Use to Flow Ratio Monthly Statistics

This graph shows that the effect of Georgia's water usage is more significant during the summer and fall months. The data from Figure 3 above shows that during the May through October period the monthly average consumptive use to flow ratio exceeded 10%. The maximum ratio values for the months of May through November exceeded 25%.

Comparison of Actual Consumptive Use to Flows at Rome, Georgia

To evaluate the effects of Georgia's consumptive water use on the flows entering Alabama from the Coosa River, the net consumptive demands were compared to the flows at the Rome, Georgia USGS gaging station. This USGS gaging station is numbered 02397000 and labeled "Coosa River Near Rome, GA". This Rome gage represents the flow from 4,040 square miles of the upper Coosa River Basin. The Rome gage location was selected for this analysis as it is the last USGS gaging station prior to the Coosa River entering Lake Weiss and Alabama. The location of the Rome gage can be seen in Figure 4 which is a schematic of the ACT River Basin. A larger version of this schematic is shown in Appendix D. This figure also shows the locations of the upstream nodes used in the Corps of Engineers modeling and data development for the ACT River Basin. Flow and consumptive water use data were developed by the Corps of Engineers for use in its surface water modeling of the ACT Basin.

Alabama had access to monthly net consumptive water use values for the nodes shown in Figure 4. Water use data was provided by each state for the development of the unimpaired flow data set used by the Corps of Engineers. On August 24, 2009, via an email from James Hathorn, the Corps of Engineers provided water use data to the states of Alabama, Florida, and Georgia. The consumptive water use data provided by the Corps of Engineers is shown in Appendix D. The monthly net consumptive water use data was provided for the 1994 – 2007 period.

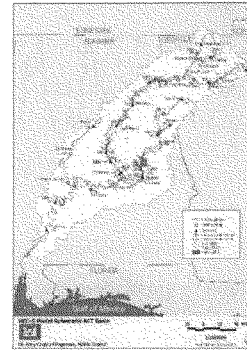


Figure 4 - ACT Basin Schematic

The USGS web site contains historic data for the Rome gage. For the purposes of this analysis, Alabama downloaded the average monthly flow data for the period of January 1, 1975 through September 30, 2012. The average monthly flow data for the Rome gage is shown in Appendix E.

Since Alabama only had access to actual monthly water use data for the 1994 – 2007 period, that is the period selected for the comparison of consumptive use and flow. It should be noted that the 1994 – 2007 period contains two significant drought periods.

The average monthly consumptive use for the nodes upstream of Rome (154, 156, 158, 160, 164, 170, 180, and 386) was extracted from the "Reach_Net (CFS)" sheet of the "GA_ACT-Coosa_1994-2007.xls" worksheet provided by the Corps of Engineers. These values were then summed to get the combined net consumptive use upstream of Rome, GA for each month of the 1994 – 2007 period. These consumptive use values were then compared to the average monthly flow at the Rome gage. The monthly consumptive use was divided by the monthly flow to produce a consumptive use to flow ratio for each month. These calculations are shown in Appendix F.

The data contained in Appendix F shows that for the 1994 – 2007 period the monthly average flows at Rome range from a low of 1,097 cfs to a high of 23,490 cfs with a long term average of 6,070 cfs. Likewise the monthly average net consumptive Georgia water use upstream of Rome range from a low of 134 cfs to a high of 315 cfs with a long term average of 207 cfs.

A graph of the monthly consumptive use to flow ratios is shown in Figure 5 below. The blue line in the following graph is a plot of the monthly consumptive use to flow ratio values from Appendix F. The x-

axis of the following graph represents time ranging from January 1994 to December 2007 and the y-axis is the consumptive use to flow ratio described above.

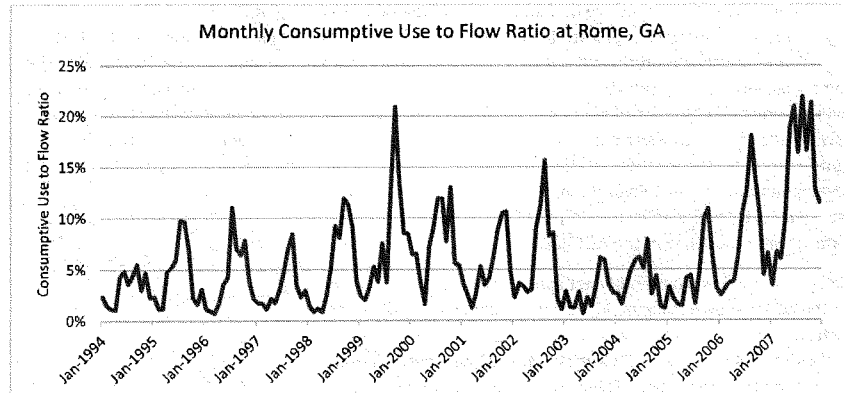


Figure 5 - Graph of Consumptive Use to Flow Ratio at Rome, GA

The above graph shows that the effect of Georgia's consumptive use on flows entering Alabama varies over the 1994 – 2007 period. The graph also shows that the ratio of consumptive use to flow is greater during the drier periods such as the droughts of 1999 – 2002 and 2006 – 2007.

The monthly ratio of consumptive use to flow exceeded 20% four times during the 1994 – 2007 period with a maximum of 22%. In other words, during the peak month with everything else being equal, the flow entering Alabama would have been 22% greater if Georgia had not consumed water. In addition, the ratio ranged from 16% to 22% from May – October of 2007 with an average of over 19%.

To gain a better understanding of how the consumptive water use compares to flow entering Alabama during different seasons of the year, the data was sorted by month to compare the monthly statistics of the calculated ratio. The graph shown in Figure 6 is a plot of two monthly statistics calculated from the data contained in Appendix F. The x-axis represents time, ranging from January to December, and the y-axis is the monthly consumptive use to flow ratio (%). The two different data sets plotted on Figure 6 are:

- The average consumptive use to flow ratio for each month. For example, the value of 3% for January was calculated by averaging the fourteen January values for the 1994 – 2007 period. The average ratio by month is represented by the blue dots with the title "Average".
- The maximum consumptive use to flow ratio for each month. For example, the value of 6% for January represents the highest monthly consumptive use to flow ratio for the month of January for the 1994 – 2007 period. The maximum ratio by month is represented by the red dots with the title "Maximum".

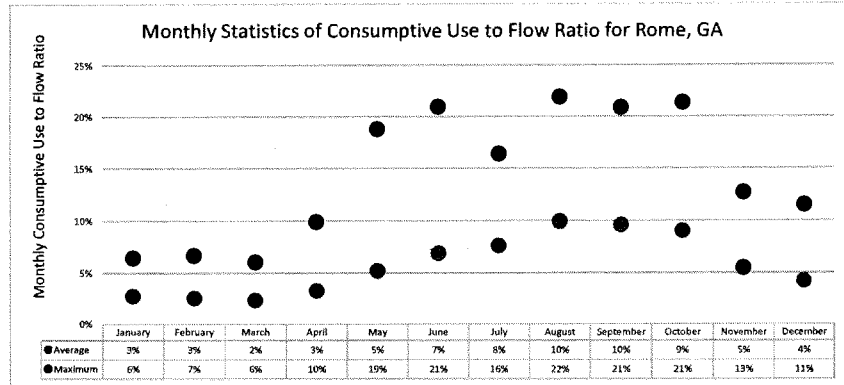


Figure 6 - Graph of Consumptive Use to Flow Ratio Monthly Statistics

This graph shows that the effect of Georgia's water usage is more significant during the summer and fall months. The data from Figure 6 above shows that during the May through October period the monthly average consumptive use to flow ratio exceeded 5%. The maximum ratio values for the months of May through October exceeded 15%.

Corps Operational Changes

Comparing consumptive use and flow is not the only way to evaluate the effects of Georgia's water use on the flows coming into Alabama. Over time, as the Georgia consumptive use has increased, the Corps of Engineers' operations have changed to the detriment of flows entering Alabama.

As discussed in the letter dated July 15, 2013 from Governor Robert Bentley to Senators Barbara Boxer and David Vitter, the Corps of Engineers' operations have changed over the years as the metro Atlanta water use has increased. The letter from Governor Bentley is included in Appendix G. The following are excerpts from this letter highlighting the Corps of Engineers' decreased use of storage to support downstream flows. A full explanation of this analysis is contained in the Appendix G.

Corps' Declining Use of Lanier Storage to Benefit Downstream Flows

Alabama analyzed the Corps' operations at Lake Lanier and how those operations changed over the same time that the Gwinnett County withdrawals were increasing. Alabama selected the three most recent droughts that occurred during the 1977 – 2006 period. Alabama focused on the drought period operations since that is the time when the Corps' releases have the most impact on the flows into Alabama. The drought periods analyzed, and highlighted in the following graph, were 1981, 1986-1988, 1999-2001.

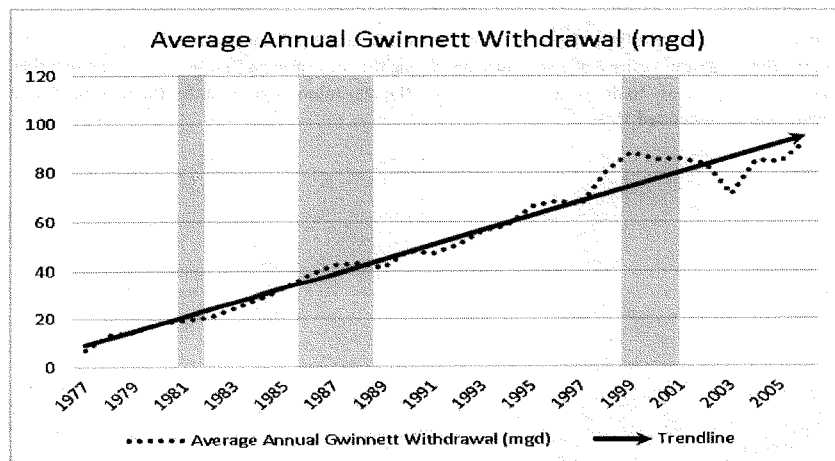


Figure 7 - Graph of Gwinnett Withdrawals

The following table shows the data from the analysis of the Corps' operations of Lake Lanier

Drought Period	Average Inflow (cfs)	Average Discharge (cfs)	Average Amount of Discharge Comprised of Releases from Storage (cfs)	Percent of Discharge Coming from Storage (%)	Average Monthly Elevation (ft-msl)	Average Annual Withdrawal from Lanier (mgd)
1981	918	1,327	409	31%	1062.13	24
1986 - 1988	984	1,111	127	11%	1062.32	47
1999 - 2001	1,015	1,070	55	5%	1062.80	108

Table 1 - Table of Corps of Engineers Operational Data

The above table shows that as Gwinnett's usage grew over time, the Corps decreased its use of Lanier's storage to augment downstream flows.

The following is a graphical depiction of some of the data from the above table.

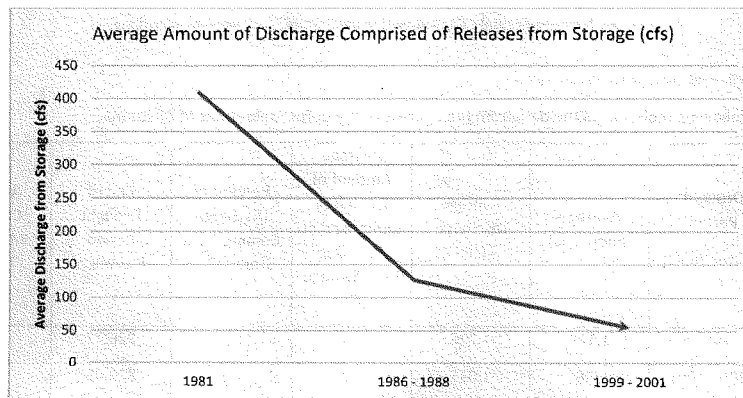


Figure 8 - Graph of Lake Lanier Storage Releases

Corps' Declining Use of Allatoona Storage to Benefit Downstream Flows

Alabama analyzed the Corps' operations at Lake Allatoona and how those operations changed over the same time that the Cobb County Marietta Water Authority (CCMWA) withdrawals were increasing. Using the 1972 - 2007 period, Alabama identified the four significant drought periods. Alabama focused on the drought period operations since that is the time when the Corps' releases have the most impact on the flows into Alabama. The drought periods analyzed, and highlighted in the following graph, were 1981, 1986-1988, 1999-2002, and 2007-2008.

The shaded area in the following graph shows the drought periods.

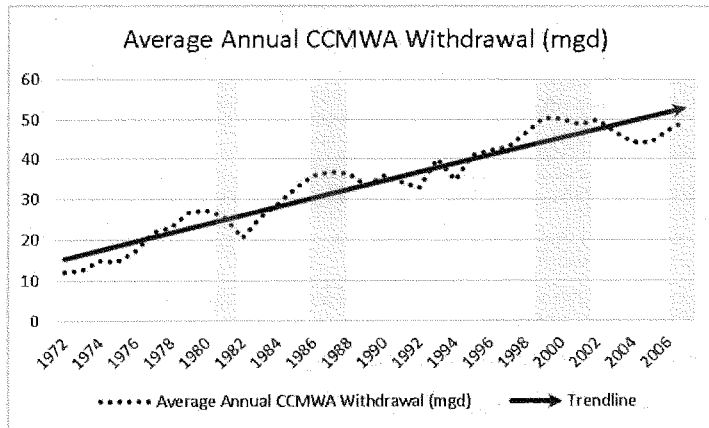


Figure 9 - Graph of CCMWA Withdrawals

The following table shows the data from the analysis of the Corps' operations of Allatoona.

Drought Period (Water Years)	Average Inflow (cfs)	Average Discharge (cfs)	Average Amount of Discharge Comprised of Releases from Storage (cfs)	Percent of Discharge Coming from Storage (%)	End of Drought Period Elevation	Average CCMWA Withdrawal (mgd)
1981	1,128	1,226	98	8%	826.77	26
1986 - 1988	996	1,035	40	4%	829.45	36
1999 - 2002	1,084	1,088	4	0%	831.46	50
2007 - 2008	838	814	-24	-3%	834.40	47

Table 2- Table of Corps of Engineers Operational Data

This table shows that as the CCMWA usage grew over time, the Corps' usage of Allatoona to augment downstream flows decreased over time. In fact, the 2007-2008 average release from storage was negative, indicating that the Corps actually stored water during this critical drought instead of using the project to augment downstream flows.

The following is a graphical depiction of some of the data from the above table.

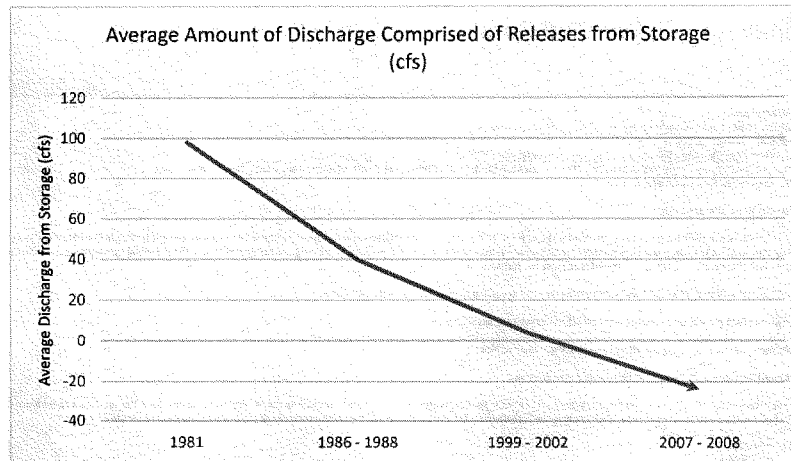


Figure 10 - Graph of Lake Allatoona Releases from Storage

The above graph shows that as the droughts progressed, the Corps stopped releasing any previously stored water to augment flows downstream. In fact, in the 2007-2008 drought on average the Corps released less water than it received as inflow.

Appendix A: ACF Demand Data

-----Original Message-----
 From: Hathorn, James E Jr SAM [mailto:James.E.Hathorn.jr@usace.army.mil]
 Sent: Wednesday, August 19, 2009 6:42 PM
 To: Atkins, Brian; wei.zeng@dnr.state.ga.us; Doug.Barr@mwfwmd.state.fl.us
 Cc: Johnston, Dow; Littlepage, Tom; Jerrick Sequibati; Otto, Douglas C Jr SAM; Smith, Christopher T SAD; Mauldin, Gary V SAD; Taylor, Peter F SAM
 Subject: RE: Unimpaired Flow Update for ACT and ACF

Good Afternoon Brian, Wei and Doug

We are near completion of the Unimpaired Flow update for the ACF and ACT basins. I have received several request for the water use data provide to Mobile District by the states. The attached zip files contains the water use data provided by Alabama, Florida and Georgia for the purpose of updating the unimpaired flow. The individual spreadsheets summarize the data by state and abbreviations in file names identify the state (AL Alabama, etc).

The file "ACF_Surface_Water_1994-2007.xls" summarizes the data according to model nodes in the ACF basin.

Please review the data provide by your state and contact me if there are any problems.

I personally thank you for supporting our effort to update the Unimpaired Flow.

Similar spreadsheets for the ACT Basin will be provided in next week.

[Rename the attached file "ACF_Surface_Water_1994-2007.zip" to "ACF_Surface_Water_1994-2007.zip". Then unzip the files to the same directory, this important to maintain the links. You should not have to update the data when opening the spreadsheet, but placing the files in the same directory will allow you to update. The files are:
 ACF_Surface_Water_1994-2007.xls
 AL_CHATT_1994-2001.xls
 AL_CHATT_2002-2008.xls
 FL_Apalachicola_1994-2008.xls
 GA_ACF-Chatt_1994-2007.xls
 GA_ACF-Flint_1994-2007.xls
 Irrigation-reduction-for-unimpaired-flow.xls]

James Hathorn
 US Army Corps of Engineers, Mobile District
 (251) 690-2735

Screenshot of the August 19, 2009 James Hathorn email



ACF Basin Schematic

Net Consumptive Use Data Provided by Georgia (taken from the "Reach_Net (CFS)" sheet of the "GA_ACF-Chatt_1997-2007.xls" file.

Data	REACH 196C	REACH 200	REACH 205	REACH 214	REACH 215	REACH 217	REACH 220	REACH 221	REACH 222	REACH 225
Jan-1994	0.00	13.15	8.91	-12.19	18.26	-148.51	48.89	111.55	-0.24	100.34
Feb-1994	0.00	12.86	12.62	-13.43	13.62	-122.91	56.94	103.21	-0.26	95.84
Mar-1994	0.00	14.46	22.27	-13.54	-90.16	-186.05	58.33	101.23	-0.19	98.57
Apr-1994	0.00	14.19	29.08	-10.84	243.01	-168.72	61.27	129.83	0.57	113.36
May-1994	0.00	15.72	41.71	-10.32	-41.81	-139.54	70.55	148.66	1.09	122.39
Jun-1994	0.00	14.87	40.30	-9.92	26.55	-112.60	70.09	156.80	1.27	134.36
Jul-1994	0.00	13.48	42.88	-9.35	63.78	-196.09	61.73	138.33	1.46	115.60
Aug-1994	0.00	14.26	25.53	-9.76	73.99	-169.39	65.29	125.68	1.36	119.33
Sep-1994	0.00	13.80	33.47	-9.35	292.33	-172.09	65.91	130.32	0.92	118.46
Oct-1994	0.00	13.56	32.35	-10.11	572.84	-163.43	65.29	125.42	0.30	107.66
Nov-1994	0.00	13.83	25.41	-9.62	92.03	-177.14	60.34	128.89	0.18	104.93
Dec-1994	0.00	13.96	10.75	-10.35	171.29	-163.75	54.93	111.75	-0.16	100.48
Jan-1995	0.00	13.15	8.68	-11.60	18.26	-172.97	55.73	111.53	-0.24	103.65
Feb-1995	0.00	12.86	24.37	-13.69	13.62	-224.90	59.31	114.40	-0.26	99.86
Mar-1995	0.00	14.46	24.93	-12.84	-90.16	-217.45	59.85	103.97	-0.19	117.08
Apr-1995	0.00	14.19	31.97	-10.01	243.01	-170.80	68.42	141.51	0.57	133.03
May-1995	0.00	15.72	51.59	-9.38	-41.81	-154.32	69.70	140.85	1.09	141.22
Jun-1995	0.00	14.87	52.32	-9.31	26.55	-147.40	18.30	141.53	1.27	138.74
Jul-1995	0.00	13.48	49.60	-8.63	63.78	-100.28	74.40	187.60	1.46	161.92
Aug-1995	0.00	14.26	28.94	-9.78	73.99	-128.77	64.70	174.41	1.36	155.04
Sep-1995	0.00	13.80	38.26	-8.73	292.33	-149.72	54.03	146.62	0.92	136.33
Oct-1995	0.00	13.56	28.39	-10.57	572.84	-184.20	50.40	117.99	0.30	126.60
Nov-1995	0.00	13.83	9.49	-10.30	92.03	-200.66	47.15	105.87	0.18	115.93
Dec-1995	0.00	13.96	6.69	-10.94	171.29	-171.44	46.65	115.97	-0.16	115.41
Jan-1996	0.00	13.25	0.88	-12.78	78.75	-222.07	35.73	91.42	-0.29	113.07
Feb-1996	0.00	12.87	4.63	-13.17	55.03	-235.30	59.84	104.55	-0.27	115.59
Mar-1996	0.00	14.59	24.00	-14.23	60.06	-237.09	36.66	80.43	-0.22	109.80
Apr-1996	0.00	14.14	19.50	-11.67	50.64	-207.57	39.84	96.55	0.53	120.37
May-1996	0.00	15.55	37.46	-11.26	53.12	-167.86	45.14	159.06	1.08	144.05
Jun-1996	0.00	14.91	54.06	-10.52	61.59	-144.64	57.45	163.49	1.26	156.72
Jul-1996	0.00	13.48	51.53	-10.06	63.57	-124.37	69.76	189.54	1.44	172.29
Aug-1996	0.00	14.16	28.48	-9.73	64.61	-157.82	27.93	137.19	1.36	149.24
Sep-1996	0.00	13.79	40.93	-9.98	63.59	-159.55	55.28	132.84	0.92	136.00
Oct-1996	0.00	13.56	30.52	-9.65	517.51	-133.20	54.53	136.24	0.31	129.40
Nov-1996	0.00	13.85	26.05	-8.93	59.88	-165.11	50.05	120.61	0.17	121.90
Dec-1996	0.00	13.99	20.43	-9.76	55.34	-182.21	48.70	109.20	-0.17	125.43
Jan-1997	0.00	13.05	5.47	-11.23	74.69	-223.09	50.70	101.77	-0.25	113.55
Feb-1997	0.00	12.85	3.67	-12.63	55.57	-234.55	40.62	100.97	-0.30	104.34
Mar-1997	0.00	14.34	10.79	-10.47	57.63	-221.67	39.19	105.02	-0.23	113.62
Apr-1997	0.00	14.23	23.16	-10.06	58.28	-185.53	57.97	109.36	0.32	123.46
May-1997	0.00	15.60	34.91	-9.89	59.90	-161.68	64.63	149.78	0.49	140.07
Jun-1997	0.00	13.49	34.74	-9.99	63.24	-153.97	73.24	165.84	0.72	152.37

Data	REACH 196C	REACH 200	REACH 205	REACH 214	REACH 215	REACH 217	REACH 220	REACH 221	REACH 222	REACH 225
Jul-1997	0.00	14.83	38.23	-10.26	61.52	-168.83	61.77	123.30	0.39	126.45
Aug-1997	0.00	14.16	28.67	-8.77	62.92	-138.03	72.44	161.79	0.68	149.61
Sep-1997	0.00	13.80	42.65	-8.51	71.30	-125.33	68.75	153.91	1.76	173.90
Oct-1997	0.00	13.57	36.46	-8.49	65.31	-144.04	65.28	129.89	1.19	142.80
Nov-1997	0.00	13.81	16.93	-9.02	79.05	-183.82	57.92	116.47	0.06	124.09
Dec-1997	0.00	13.93	-4.67	-11.00	59.30	-196.94	58.10	104.08	-0.21	118.01
Jan-1998	-6.20	12.97	5.68	-11.90	60.61	-243.45	84.47	83.95	-0.16	116.53
Feb-1998	-4.24	12.82	-12.41	-13.55	43.95	-275.20	53.05	96.03	-0.01	120.48
Mar-1998	-5.06	14.29	-3.73	-12.92	54.15	-244.07	45.02	101.11	0.20	125.14
Apr-1998	-4.27	14.17	10.47	-12.90	60.24	-249.86	54.21	88.45	0.26	123.01
May-1998	-9.93	15.61	36.33	-10.20	63.53	-165.03	66.80	132.28	0.45	161.58
Jun-1998	-6.90	14.95	46.80	-9.50	64.59	-140.09	77.48	171.48	0.71	202.93
Jul-1998	-4.01	13.64	43.23	-8.70	64.33	-117.69	75.98	188.98	0.61	214.42
Aug-1998	-1.98	14.29	35.25	-8.48	63.93	-120.66	73.69	160.29	0.72	201.58
Sep-1998	-0.89	13.76	38.07	-8.05	74.80	-109.82	78.04	184.78	0.95	208.72
Oct-1998	-4.89	13.50	29.18	-7.98	62.14	-100.95	73.65	170.73	0.70	190.69
Nov-1998	-5.50	13.88	27.64	-7.75	69.80	-124.31	60.77	143.71	0.24	167.68
Dec-1998	53.47	13.92	22.21	-8.25	61.12	-122.73	56.69	127.13	0.17	163.04
Jan-1999	0.00	11.68	15.49	-9.21	71.59	-147.91	56.32	122.70	0.07	141.39
Feb-1999	0.00	11.02	0.71	-11.36	55.17	-165.33	52.79	116.94	0.18	139.58
Mar-1999	0.00	15.03	12.89	-9.59	61.22	-162.32	53.47	122.34	0.19	143.47
Apr-1999	0.00	15.54	29.43	-8.65	59.97	-126.33	66.06	156.74	0.40	175.27
May-1999	0.00	15.38	37.44	-8.62	64.68	-122.94	78.60	167.00	0.35	180.97
Jun-1999	0.00	15.12	35.07	-9.65	66.04	-124.58	79.96	185.45	0.61	198.76
Jul-1999	0.00	14.85	33.92	-9.62	65.21	-129.27	75.98	154.04	0.50	194.77
Aug-1999	0.00	16.10	51.01	-9.02	64.52	-83.60	88.62	218.18	0.72	238.82
Sep-1999	0.00	15.32	48.45	-8.11	72.15	-86.40	80.85	185.10	0.88	213.04
Oct-1999	0.00	15.09	31.20	-8.66	69.19	-109.24	63.78	149.79	0.42	176.51
Nov-1999	0.00	14.30	30.89	-8.48	70.80	-121.23	62.19	134.29	0.13	162.71
Dec-1999	0.00	14.02	24.92	-8.22	63.52	-132.40	51.50	116.72	-0.14	146.07
Jan-2000	0.00	14.29	17.94	-8.80	61.85	-133.63	59.74	119.46	-0.05	138.43
Feb-2000	0.00	14.63	21.02	-8.79	63.15	-126.69	74.59	112.12	0.03	142.02
Mar-2000	0.00	13.56	9.43	-9.24	61.69	-140.05	68.21	115.13	0.05	143.05
Apr-2000	0.00	12.91	22.33	-9.82	62.78	-138.29	66.53	130.29	0.38	162.29
May-2000	0.00	16.02	56.36	-8.09	66.43	-92.09	83.43	193.76	0.60	213.95
Jun-2000	0.00	14.81	63.16	-7.78	65.02	-65.48	85.31	205.28	0.71	222.03
Jul-2000	0.00	12.33	58.81	-7.36	65.59	-59.05	87.33	202.23	0.65	214.85
Aug-2000	0.00	12.50	51.11	-7.91	64.03	-78.54	83.58	183.39	0.64	198.22
Sep-2000	0.00	12.34	25.64	-8.14	64.31	-112.16	71.65	136.40	0.40	175.87
Oct-2000	0.00	12.00	34.93	-7.52	64.76	-74.33	72.10	151.72	0.42	180.13
Nov-2000	0.00	13.33	22.49	-8.40	63.12	-120.81	61.62	128.51	0.13	158.23
Dec-2000	0.00	13.91	15.33	-9.42	64.13	-121.78	59.57	117.86	0.00	154.29
Jan-2001	-5.98	13.44	20.28	-9.76	2.49	-151.95	61.21	121.80	-0.08	153.52
Feb-2001	3.52	14.78	14.41	-10.49	191.49	-160.58	53.02	89.76	-0.07	146.83
Mar-2001	4.42	13.97	-18.00	-14.09	92.11	-226.06	53.29	102.67	-0.01	143.66

Data	REACH 196C	REACH 200	REACH 205	REACH 214	REACH 215	REACH 217	REACH 220	REACH 221	REACH 222	REACH 225
Apr-2001	2.14	14.13	1.69	-11.05	-201.45	-163.57	65.46	123.07	0.15	162.89
May-2001	3.53	14.25	25.87	-8.97	110.51	-116.02	77.05	150.21	0.56	203.33
Jun-2001	2.29	14.10	31.35	-10.35	-39.31	-151.35	69.10	125.85	0.34	179.53
Jul-2001	-1.67	14.08	32.54	-8.35	28.60	-108.45	73.85	162.31	0.49	203.63
Aug-2001	3.47	13.35	44.55	-7.98	108.17	-91.58	75.46	160.23	0.40	203.83
Sep-2001	2.78	13.43	41.52	-8.34	396.64	-103.79	69.38	144.70	0.49	191.50
Oct-2001	-0.33	13.98	35.08	-6.96	235.84	-71.18	70.35	134.45	0.36	191.55
Nov-2001	-0.47	12.82	35.68	-6.76	95.31	-97.30	68.99	142.28	0.24	182.36
Dec-2001	1.57	12.20	30.77	-6.64	-7.84	-111.89	59.74	104.71	-0.11	160.15
Jan-2002	-3.25	13.38	20.85	-7.61	106.93	-149.62	56.60	89.59	-0.30	150.56
Feb-2002	-0.15	13.30	14.36	-8.59	55.23	-143.09	55.84	105.35	-0.29	151.42
Mar-2002	-4.95	12.98	11.87	-8.97	74.96	-156.69	50.78	114.69	0.00	148.53
Apr-2002	0.93	13.32	27.69	-7.94	78.14	-126.75	64.97	117.93	0.08	170.46
May-2002	1.39	13.04	42.95	-8.00	66.97	-116.17	70.47	132.65	0.25	188.34
Jun-2002	3.40	12.91	52.62	-7.58	88.90	-78.19	81.44	152.69	0.57	215.90
Jul-2002	-2.17	12.92	44.42	-7.55	84.36	-83.33	81.83	160.26	0.46	204.54
Aug-2002	-0.62	12.89	55.94	-7.47	86.28	-72.24	88.22	181.68	0.56	203.18
Sep-2002	-1.24	12.84	47.00	-7.53	84.25	-110.27	78.60	154.79	0.54	187.89
Oct-2002	0.62	12.95	26.21	-7.91	73.48	-137.73	66.79	119.42	0.19	156.69
Nov-2002	0.15	13.39	11.00	-9.14	57.73	-170.81	56.19	96.07	-0.27	140.95
Dec-2002	3.40	13.23	11.72	-9.16	70.67	-181.12	54.97	83.68	-0.33	136.96
Jan-2003	1.70	13.32	17.73	-8.66	64.79	-148.19	58.52	102.27	-0.31	139.03
Feb-2003	3.09	13.15	-14.29	-10.52	51.93	-182.15	56.21	89.47	-0.29	136.05
Mar-2003	4.18	12.27	-20.70	-12.50	69.26	-203.06	53.32	82.41	-0.32	138.14
Apr-2003	1.24	13.51	2.96	-11.36	80.22	-166.56	53.67	105.10	-0.04	148.61
May-2003	2.48	13.55	5.45	-13.46	70.45	-242.67	64.49	89.71	-0.27	146.24
Jun-2003	1.24	13.20	6.31	-15.18	70.00	-208.50	61.87	98.74	-0.28	161.97
Jul-2003	-1.70	14.62	5.57	-10.97	78.62	-204.69	64.70	96.59	0.10	167.94
Aug-2003	-0.62	13.87	18.86	-10.12	83.53	-134.75	70.55	119.69	0.28	178.24
Sep-2003	2.48	12.84	33.94	-9.38	74.26	-106.74	78.91	146.68	0.54	190.26
Oct-2003	-0.31	12.79	30.64	-8.97	65.29	-108.88	78.66	131.32	0.39	174.90
Nov-2003	1.55	12.06	30.88	-9.19	53.18	-140.64	66.81	104.10	-0.13	156.87
Dec-2003	5.11	11.61	19.82	-9.52	60.70	-141.97	67.13	83.44	-0.17	147.44
Jan-2004	2.32	11.56	18.78	-9.65	77.77	-152.48	71.22	84.83	-0.16	146.38
Feb-2004	3.25	12.20	1.74	-11.59	90.14	-187.87	66.65	67.17	-0.15	146.56
Mar-2004	3.09	7.64	24.31	-8.91	72.09	-134.29	73.69	92.02	0.14	159.67
Apr-2004	1.39	12.79	42.52	-8.22	90.08	-119.76	82.37	120.52	0.45	183.80
May-2004	3.56	13.78	40.91	-7.91	103.70	-110.56	85.27	135.42	0.40	198.08
Jun-2004	3.40	11.09	31.88	-8.56	95.48	-115.96	73.82	118.96	-0.02	189.75
Jul-2004	-1.08	10.09	38.51	-7.84	105.29	-110.12	72.89	124.45	0.28	198.30
Aug-2004	2.78	9.94	46.93	-7.60	92.79	-98.02	74.11	136.70	0.48	207.15
Sep-2004	4.80	10.26	18.78	-8.96	86.02	-158.72	66.79	94.22	-0.07	180.10
Oct-2004	4.33	9.05	26.89	-7.72	79.57	-121.44	73.58	108.36	0.04	172.38
Nov-2004	2.17	9.52	16.24	-10.17	72.22	-179.41	67.86	98.33	-0.12	158.25
Dec-2004	2.01	9.24	14.03	-9.52	69.96	-193.27	61.62	100.94	-0.14	144.78

Data	REACH 196C	REACH 200	REACH 205	REACH 214	REACH 215	REACH 217	REACH 220	REACH 221	REACH 222	REACH 225
Jan-2005	-2.32	9.12	15.67	-9.65	57.80	-164.30	60.70	93.85	-0.19	148.46
Feb-2005	1.55	7.86	-3.40	-11.59	65.04	-202.60	57.54	75.21	-0.25	145.11
Mar-2005	1.08	8.46	-4.00	-8.91	81.81	-202.22	60.25	81.00	-0.24	152.29
Apr-2005	0.31	9.02	-8.36	-8.22	84.99	-174.40	63.71	92.81	-7.00	164.25
May-2005	1.08	11.08	26.69	-7.91	96.96	-117.50	73.40	130.60	-6.18	187.82
Jun-2005	2.17	10.12	7.50	-8.56	103.79	-126.90	74.64	119.08	0.36	180.41
Jul-2005	0.77	13.51	3.31	-7.84	99.27	-202.51	79.12	109.82	-9.62	183.06
Aug-2005	3.09	14.61	11.72	-7.60	106.59	-151.02	80.64	96.49	-6.37	161.63
Sep-2005	4.02	12.93	38.07	-8.96	113.94	-91.31	92.51	149.25	-5.73	215.95
Oct-2005	2.48	12.49	32.69	-7.72	92.36	-103.84	81.18	122.28	-6.40	197.67
Nov-2005	-26.46	10.60	22.68	-10.17	96.20	-107.91	77.34	110.69	-6.54	178.65
Dec-2005	4.33	10.58	16.78	-9.52	93.18	-154.18	70.58	83.78	-7.33	156.47
Jan-2006	1.08	10.37	8.50	-9.65	66.92	-169.53	72.27	71.75	-7.53	153.25
Feb-2006	5.42	10.85	5.16	-11.59	69.19	-191.28	69.87	66.94	-7.54	157.01
Mar-2006	4.64	11.71	-0.12	-8.91	87.83	-156.42	68.85	80.60	-7.55	162.63
Apr-2006	3.25	11.87	16.39	-8.22	96.13	-132.27	73.71	110.08	-6.86	183.60
May-2006	3.40	9.81	30.82	-7.91	108.90	-102.72	81.34	127.08	-6.65	206.36
Jun-2006	1.08	12.78	52.54	-8.56	113.99	-73.21	103.91	181.14	-5.77	253.12
Jul-2006	-0.15	12.10	53.73	-7.84	111.69	-51.45	94.18	155.78	-5.65	246.73
Aug-2006	1.70	11.19	45.80	-7.60	110.65	-96.68	86.81	142.89	-6.30	239.42
Sep-2006	4.18	12.63	37.79	-8.96	96.19	-110.93	78.50	111.05	-6.19	204.70
Oct-2006	1.24	10.79	36.08	-7.72	84.03	-110.34	77.21	107.92	-6.25	198.71
Nov-2006	1.08	10.31	23.83	-10.17	93.82	-146.22	72.67	88.41	-7.04	170.21
Dec-2006	1.86	9.00	19.27	-9.52	84.81	-134.59	67.58	81.16	-6.92	160.30
Jan-2007	0.77	9.59	4.25	0.00	64.60	-171.14	61.69	69.74	-7.20	155.80
Feb-2007	4.02	11.73	11.98	0.00	76.36	-147.52	61.76	76.43	-7.16	157.03
Mar-2007	3.40	3.24	17.70	0.00	83.71	-132.42	66.14	86.70	-7.24	169.71
Apr-2007	1.55	11.26	30.98	0.00	100.40	-108.04	75.19	107.85	-6.51	186.26
May-2007	-1.24	9.59	60.85	0.00	109.33	-62.31	95.97	141.96	-5.85	239.67
Jun-2007	-2.48	12.20	57.88	0.00	102.99	-57.97	106.35	140.42	-5.67	238.14
Jul-2007	-1.24	12.27	49.73	0.00	101.37	-80.02	93.54	115.32	-5.61	202.06
Aug-2007	1.55	11.54	57.76	0.00	113.53	-32.98	103.45	154.67	-5.70	247.90
Sep-2007	1.08	12.17	49.86	0.00	94.92	-51.13	92.92	132.17	-6.06	220.32
Oct-2007	0.31	10.63	38.54	0.00	80.73	-82.41	71.19	105.99	-6.21	172.51
Nov-2007	0.93	9.78	28.13	0.00	85.08	-97.82	70.21	75.47	-6.42	151.77
Dec-2007	-2.17	8.70	11.36	0.00	79.14	-114.42	69.53	74.94	-6.59	144.07

Appendix B: Monthly USGS Data for Whitesburg, Georgia

USGS
National Water Information System: Web Interface

USGS Water Resources
Data Category: Geographic Area:

United States

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- August 8, 2013
- Try our new mobile-friendly water data site from your mobile device!
- New improved user interface.
- Full News

USGS 02338000 CHATTAHOOCHEE RIVER NEAR WHITESBURG, GA

Stream Site

DESCRIPTION:
Latitude 33°28'37", Longitude 84°54'03" NAD27
Carroll County, Georgia, Hydrologic Unit 03130002
Drainage area: 2,430 square miles
Datum of gage: 682.06 feet above NGVD29.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Current / Historical Observations (availability statement)	2007-10-01	2013-08-15	
Daily Data			
Temperature, water, degrees Celsius	1984-01-17	1984-09-30	609
Precipitation, total, inches	2000-12-05	2013-08-14	4403
Discharge, cubic feet per second	1938-10-01	2013-08-14	23507
Gage height, feet	1990-10-02	2013-08-14	8280
Daily Statistics			
Temperature, water, degrees Celsius	1984-01-17	1984-09-30	203
Discharge, cubic feet per second	1938-10-01	2012-09-30	23191
Gage height, feet	1990-10-02	2012-09-30	7964
Monthly Statistics			
Temperature, water, degrees Celsius	1984-01	1984-09	
Discharge, cubic feet per second	1938-10	2012-09	
Gage height, feet	1990-10	2012-09	
Annual Statistics			
Temperature, water, degrees Celsius	1984	1984	
Discharge, cubic feet per second	1939	2012	
Gage height, feet	1991	2012	
Peak Streamflow			
Field measurements	1889-04	2012-03-03	68
Field/Lab water-quality samples	1941-05-19	2012-09-20	1395
Additional Data Sources			
USGS - Data Archive	1988-06-13	2007-09-30	103913

00060. Discharge, cubic feet per second.
Monthly mean in ft³/s (Calculation Period: 1975-01-01 -> 2012-09-30)

YEAR	Period-of-record for statistical calculation restricted by user											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1975	4,494	6,845	10,420	7,351	5,932	3,877	3,213	3,724	3,208	4,030	3,981	4,144
1976	7,292	5,137	9,541	8,675	6,932	5,921	4,810	3,328	2,669	2,179	2,140	2,927
1977	4,006	2,676	7,673	10,160	2,933	2,496	2,796	3,226	2,727	2,951	5,296	4,015
1978	9,241	5,800	4,631	3,574	4,439	2,786	2,624	3,892	2,962	3,186	3,058	2,153
1979	3,097	4,165	3,962	12,830	6,065	4,266	2,706	3,013	3,817	3,495	4,229	2,725
1980	6,211	4,715	12,170	10,120	7,491	4,207	3,169	2,972	2,852	2,950	2,014	1,887
1981	1,643	4,384	2,699	2,628	2,466	1,982	1,920	2,685	2,454	2,564	2,550	2,505
1982	4,024	6,870	3,122	4,694	2,590	2,484	2,583	2,610	2,309	2,945	2,293	5,845
1983	4,597	6,557	7,010	9,101	5,190	3,576	3,161	3,250	2,973	2,148	4,257	7,833
1984	5,720	6,396	6,692	7,078	6,335	3,502	4,240	6,396	3,129	2,661	2,788	2,723
1985	2,304	4,659	2,682	2,397	2,935	2,652	3,593	3,691	2,731	2,571	2,417	2,933
1986	2,126	2,141	2,806	1,797	1,940	1,607	2,343	1,797	1,790	2,506	2,729	2,944
1987	4,963	3,162	4,221	3,270	2,555	3,151	2,922	3,553	3,027	2,219	2,051	2,030
1988	3,068	2,948	2,060	2,771	1,603	1,383	1,651	1,659	1,898	1,831	1,830	1,477
1989	2,068	2,196	2,019	2,794	2,363	4,152	4,322	3,385	3,981	6,800	4,214	4,235
1990	7,841	12,550	13,329	6,156	3,928	2,828	3,076	3,675	3,608			2,890
1991	3,716	3,733	4,253	3,645	7,823	4,319	4,536	4,112	4,892	4,686	3,477	2,901
1992	3,952	4,613	4,552	3,897	3,284	2,899	4,059	3,803	3,230	3,756	7,249	9,716
1993	10,900	7,625	7,443	6,835	5,030	3,948	3,360	2,901	2,451	2,825	2,613	2,496
1994	3,073	5,580	4,183	3,389	2,169	3,267	5,721	5,858	5,336	3,242	3,134	4,009
1995	4,287	8,642	8,216	3,322	3,063	2,962	2,707	3,237	3,275	5,487	5,023	3,679
1996	7,474	11,190	10,280	4,882	4,458	3,424	2,662	3,723	3,066	2,323	2,636	2,814
1997	4,223	5,394	7,593	4,542	4,214	4,708	3,682	2,653	4,065	3,575	3,349	3,869
1998	6,587	11,120	10,960	7,989	6,517	3,857	3,675	3,106	2,276	1,874	2,040	2,056
1999	2,559	2,894	2,453	1,900	2,030	2,652	2,535	1,499	1,534	1,721	1,887	1,840
2000	2,397	2,248	2,775	3,023	1,574	2,036	2,054	2,420	3,102	1,419	2,431	2,035
2001	2,635	2,840	5,398	2,744	1,889	2,873	2,361	2,053	1,614	1,153	1,067	1,525
2002	2,990	1,997	2,587	2,198	2,515	1,390	1,544	1,299	2,222	2,699	3,816	4,562
2003	2,907	4,569	7,324	4,390	10,800	8,807	8,045	4,327	2,872	2,452	4,024	4,152
2004	4,471	4,807	2,827	2,529	2,168	2,757	3,185	2,689	7,708	4,025	5,019	7,221
2005	4,180	5,434	7,059	7,047	3,680	4,801	10,970	6,154	2,700	2,157	2,292	4,151
2006	5,790	5,546	3,886	3,519	3,203	2,542	1,524	2,083	1,994	1,820	2,676	1,919
2007	3,776	2,480	2,533	1,912	1,419	1,701	1,930	1,508	1,789	1,618	2,351	1,926
2008	1,635	2,990	2,974	2,284	1,873	1,357	1,669	2,037	1,146	1,325	1,293	2,288
2009	2,172	1,810	4,192	3,171	2,634	1,617	1,622	1,825	9,961	5,821	8,153	10,370
2010	6,793	9,386	7,124	3,630	6,197	2,975	2,445	2,514	1,652	1,730	1,964	2,559
2011	2,435	3,523	6,601	5,452	3,792	2,527	1,884	1,368	2,092	1,968	2,415	2,489
2012	2,576	1,716	2,790	2,128	1,939	1,488	1,923	1,494	1,252			
Mean of monthly Discharge	4,300	4,990	5,630	4,740	3,970	3,150	3,240	3,050	3,070	2,860	3,170	3,560

** No Incomplete data have been used for statistical calculation

Appendix C: Compare Monthly Whitesburg Consumptive Use and Flows

	Average Monthly Flow at Whitesburg (cfs)	Net Georgia Consumptive Use Upstream of Whitesburg (cfs)	Consumptive Use to Flow Ratio
Jan-1994	3,073	112	4%
Feb-1994	3,580	133	4%
Mar-1994	4,183	72	2%
Apr-1994	3,389	136	4%
May-1994	2,169	203	9%
Jun-1994	3,267	250	8%
Jul-1994	5,721	121	2%
Aug-1994	5,858	142	2%
Sep-1994	5,336	144	3%
Oct-1994	3,242	135	4%
Nov-1994	3,134	117	4%
Dec-1994	4,009	103	3%
Jan-1995	4,287	98	2%
Feb-1995	8,642	48	1%
Mar-1995	8,216	63	1%
Apr-1995	3,322	173	5%
May-1995	3,063	199	6%
Jun-1995	2,962	152	5%
Jul-1995	2,707	325	12%
Aug-1995	3,237	267	8%
Sep-1995	3,275	188	6%
Oct-1995	5,487	111	2%
Nov-1995	5,023	68	1%
Dec-1995	3,679	106	3%
Jan-1996	7,474	18	0%
Feb-1996	11,190	44	0%
Mar-1996	10,280	-10	0%
Apr-1996	4,882	50	1%
May-1996	4,458	181	4%
Jun-1996	3,424	234	7%
Jul-1996	2,662	309	12%
Aug-1996	3,723	158	4%
Sep-1996	3,006	165	6%
Oct-1996	2,323	187	8%
Nov-1996	2,636	128	5%

	Average Monthly Flow at Whitesburg (cfs)	Net Georgia Consumptive Use Upstream of Whitesburg (cfs)	Consumptive Use to Flow Ratio
Dec-1996	2,814	101	4%
Jan-1997	4,223	43	1%
Feb-1997	5,394	11	0%
Mar-1997	7,593	36	0%
Apr-1997	4,542	106	2%
May-1997	4,214	193	5%
Jun-1997	4,708	238	5%
Jul-1997	3,682	143	4%
Aug-1997	2,653	246	9%
Sep-1997	4,065	273	7%
Oct-1997	3,575	195	5%
Nov-1997	3,349	115	3%
Dec-1997	3,869	83	2%
Jan-1998	6,587	41	1%
Feb-1998	11,120	-6	0%
Mar-1998	10,960	27	0%
Apr-1998	7,989	16	0%
May-1998	6,517	196	3%
Jun-1998	3,857	313	8%
Jul-1998	3,675	362	10%
Aug-1998	3,106	316	10%
Sep-1998	2,276	363	16%
Oct-1998	1,874	335	18%
Nov-1998	2,040	248	12%
Dec-1998	2,056	224	11%
Jan-1999	2,559	173	7%
Feb-1999	2,994	144	5%
Mar-1999	2,453	157	6%
Apr-1999	1,900	272	14%
May-1999	2,030	304	15%
Jun-1999	2,652	340	13%
Jul-1999	2,535	296	12%
Aug-1999	1,499	463	31%
Sep-1999	1,534	393	26%
Oct-1999	1,721	281	16%
Nov-1999	1,887	238	13%
Dec-1999	1,840	182	10%
Jan-2000	2,397	184	8%
Feb-2000	2,249	202	9%

	Average Monthly Flow at Whitesburg (cfs)	Net Georgia Consumptive Use Upstream of Whitesburg (cfs)	Consumptive Use to Flow Ratio
Mar-2000	2,775	186	7%
Apr-2000	3,023	221	7%
May-2000	1,574	400	25%
Jun-2000	2,036	448	22%
Jul-2000	2,054	446	22%
Aug-2000	2,420	387	16%
Sep-2000	3,102	272	9%
Oct-2000	1,418	330	23%
Nov-2000	2,431	228	9%
Dec-2000	2,035	210	10%
Jan-2001	2,635	184	7%
Feb-2001	2,840	129	5%
Mar-2001	5,398	74	1%
Apr-2001	2,744	188	7%
May-2001	1,889	315	17%
Jun-2001	2,873	223	8%
Jul-2001	2,381	332	14%
Aug-2001	2,053	348	17%
Sep-2001	1,614	302	19%
Oct-2001	1,153	326	28%
Nov-2001	1,067	297	28%
Dec-2001	1,525	213	14%
Jan-2002	2,990	147	5%
Feb-2002	1,997	169	8%
Mar-2002	2,587	157	6%
Apr-2002	2,198	227	10%
May-2002	2,515	276	11%
Jun-2002	1,399	372	27%
Jul-2002	1,544	364	24%
Aug-2002	1,259	401	32%
Sep-2002	2,522	312	12%
Oct-2002	2,659	205	8%
Nov-2002	3,816	122	3%
Dec-2002	4,562	94	2%
Jan-2003	2,907	151	5%
Feb-2003	4,569	99	2%
Mar-2003	7,324	70	1%
Apr-2003	4,386	141	3%
May-2003	10,800	57	1%

	Average Monthly Flow at Whitesburg (cfs)	Net Georgia Consumptive Use Upstream of Whitesburg (cfs)	Consumptive Use to Flow Ratio
Jun-2003	8,807	114	1%
Jul-2003	8,045	125	2%
Aug-2003	4,337	234	5%
Sep-2003	2,872	310	11%
Oct-2003	2,462	276	11%
Nov-2003	4,024	187	5%
Dec-2003	4,152	156	4%
Jan-2004	4,471	150	3%
Feb-2004	4,807	92	2%
Mar-2004	2,827	191	7%
Apr-2004	2,528	267	11%
May-2004	2,168	309	14%
Jun-2004	2,757	267	10%
Jul-2004	3,189	286	9%
Aug-2004	2,689	320	12%
Sep-2004	7,798	182	2%
Oct-2004	4,025	233	6%
Nov-2004	5,019	145	3%
Dec-2004	7,231	114	2%
Jan-2005	4,180	139	3%
Feb-2005	5,434	75	1%
Mar-2005	7,059	91	1%
Apr-2005	7,047	139	2%
May-2005	3,680	268	7%
Jun-2005	4,801	248	5%
Jul-2005	10,970	160	1%
Aug-2005	6,154	181	3%
Sep-2005	2,790	361	13%
Oct-2005	2,157	291	13%
Nov-2005	2,297	252	11%
Dec-2005	4,151	149	4%
Jan-2006	5,790	120	2%
Feb-2006	5,566	95	2%
Mar-2006	3,886	148	4%
Apr-2006	3,519	228	6%
May-2006	3,203	305	10%
Jun-2006	2,542	459	18%
Jul-2006	1,524	440	29%
Aug-2006	2,083	366	18%

	Average Monthly Flow at Whitesburg (cfs)	Net Georgia Consumptive Use Upstream of Whitesburg (cfs)	Consumptive Use to Flow Ratio
Sep-2006	1,994	277	14%
Oct-2006	1,820	267	15%
Nov-2006	2,676	178	7%
Dec-2006	1,919	168	9%
Jan-2007	3,276	109	3%
Feb-2007	2,480	141	6%
Mar-2007	2,535	183	7%
Apr-2007	1,912	255	13%
May-2007	1,419	409	29%
Jun-2007	1,701	421	25%
Jul-2007	1,930	325	17%
Aug-2007	1,508	467	31%
Sep-2007	1,789	388	22%
Oct-2007	1,915	261	14%
Nov-2007	2,351	193	8%
Dec-2007	1,926	168	9%

Appendix D: ACT Demand Data

-----Original Message-----
From: Hathorn, James E Jr SAM (mailto:James.E.Hathorn.Jr@usace.army.mil)
Sent: Monday, August 24, 2009 1:27 PM
To: Hathorn, James E Jr SAM; Atkins, Brian; wclzeng@dmr.state.ga.us; Doug.Barry@nwfwmnd.state.fl.us
Cc: Johnston, Dow; Littlepage, Tom; Jerrick Saquibai; Otto, Douglas C Jr SAM; Smith, Christopher T SAD; Maudlin, Gary V SAD; Taylor, Peter F SAM
Subject: RE: Unimpaired Flow Update for ACT and ACF (ACT file attached)

Brian, Wei and Doug

As promised the ACT surface water data is attached.

The file "ACT_Surface_Water_1994-2007.xls" summarizes the data according to model nodes in the ACT basin.

Please review the data provide by your state and contact me if there are any problems.

(Rename the attached file "ACT_Surface_Water_1994-2007.xls" to "ACT_Surface_Water_1994-2007.zip". Then unzip the files to the same directory, this important to maintain the links. You should not have to update the data when opening the spreadsheet, but placing the files in the same directory will allow you to update. The files are:

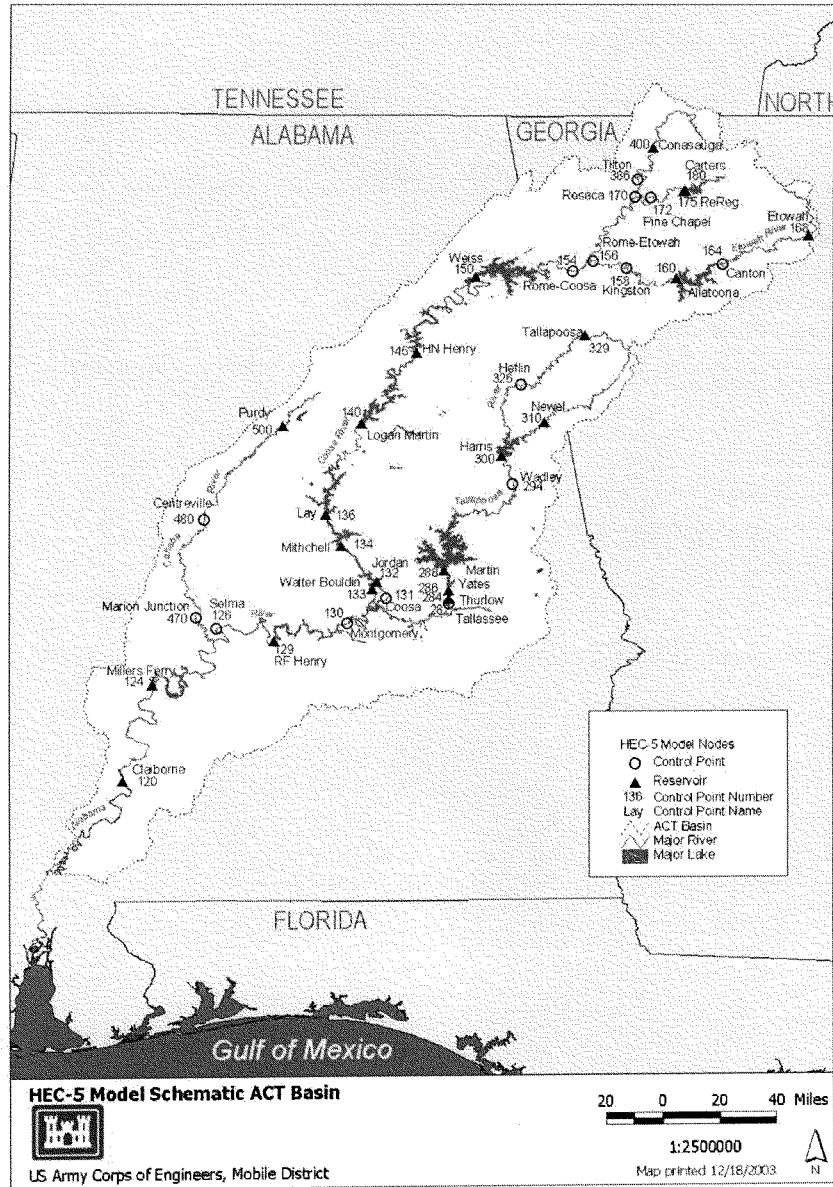
ACT_Surface_Water_1994-2007.xls
AL_ACT_1994-2001.xls
AL_ACT_2001-2008.xls
GA_ACT-Tallahassee_1994-2007.xls
GA_ACT-Coosa_1994-2007.xls)

Again thank you for your assistance.

The updated unimpaired flow data will be provided soon.

James Hathorn
US Army Corps of Engineers, Mobile District
(251) 690-2735

Screenshot of the August 24, 2009 James Hathorn email



ACT Basin Schematic

Net Consumptive Use Data Provided by Georgia (taken from the "Reach_Net (CFS)" sheet of the "GA_ACT-Coosa_1997-2007.xls" file.

Data	REACH 150	REACH 154E	REACH 154O	REACH 156	REACH 158	REACH 160	REACH 164	REACH 170	REACH 180	REACH 386
Jan-1994	-3.19	-21.43	4.32	-9.44	50.29	49.29	14.68	8.11	3.63	60.39
Feb-1994	-4.36	-23.29	2.59	-12.07	42.34	34.46	14.14	7.62	3.52	64.39
Mar-1994	-5.88	-22.00	2.08	-13.77	44.82	34.20	13.56	8.01	3.53	66.19
Apr-1994	0.02	-15.35	6.39	-10.21	56.95	50.47	14.42	9.16	3.22	66.17
May-1994	3.17	-11.43	8.79	-11.76	62.82	56.49	14.59	9.93	3.53	68.16
Jun-1994	4.44	-10.52	9.95	-11.91	76.88	61.02	14.68	11.44	3.97	70.15
Jul-1994	3.02	-7.60	8.35	-9.90	79.38	52.55	13.86	9.05	3.72	62.14
Aug-1994	3.84	-9.76	7.96	-10.83	72.44	52.28	13.47	10.99	4.33	70.27
Sep-1994	2.63	-11.76	8.75	-10.06	73.15	53.62	13.50	10.84	3.91	67.38
Oct-1994	1.42	-12.84	8.01	-10.99	65.90	42.99	14.46	9.35	3.71	63.81
Nov-1994	-0.63	-17.68	6.61	-11.45	60.58	39.04	14.82	7.89	3.51	59.73
Dec-1994	-3.18	-16.21	7.59	-8.35	55.98	37.89	14.62	7.05	3.30	55.06
Jan-1995	0.25	-17.87	5.24	-12.22	51.16	42.23	15.21	8.26	3.65	60.39
Feb-1995	-0.83	-22.67	3.60	-13.15	43.18	37.99	15.49	8.22	3.98	64.39
Mar-1995	-2.66	-21.34	1.96	-14.39	45.35	37.77	15.64	8.56	3.78	66.19
Apr-1995	4.58	-13.29	8.40	-11.29	57.82	52.00	14.97	10.76	3.44	66.17
May-1995	4.10	-11.70	9.45	-10.83	62.88	57.93	14.77	11.18	3.96	68.16
Jun-1995	4.78	-9.93	9.20	-10.37	80.43	22.16	15.44	11.17	4.38	70.15
Jul-1995	4.15	-8.39	7.57	-10.21	82.75	81.54	18.58	2.65	4.71	61.64
Aug-1995	7.12	-8.23	-11.53	-10.06	76.04	80.18	17.28	1.55	5.36	64.48
Sep-1995	6.78	-10.83	-8.93	-9.28	76.70	72.42	16.66	1.19	5.12	64.19
Oct-1995	3.03	-16.25	-6.62	-8.82	69.87	62.53	15.81	3.64	4.23	64.88
Nov-1995	1.41	-20.55	-0.60	-9.44	62.18	53.91	14.87	7.43	3.86	59.73
Dec-1995	3.57	-14.82	4.11	-9.44	59.08	54.33	16.77	7.06	3.49	55.06
Jan-1996	39.00	-25.51	3.06	-11.29	56.73	43.86	18.08	6.30	3.94	49.07
Feb-1996	45.63	-24.24	4.67	-12.53	50.23	44.28	19.05	7.82	4.27	59.18
Mar-1996	45.21	-23.27	2.80	-13.31	49.96	33.86	17.32	7.41	4.12	55.66
Apr-1996	47.47	-17.76	4.42	-11.14	64.12	42.72	17.70	8.43	4.52	60.09
May-1996	50.21	-11.53	10.46	-12.07	69.49	68.40	20.49	9.36	5.12	63.08
Jun-1996	49.67	-11.50	9.61	-11.14	82.82	77.98	17.44	9.71	4.38	70.15
Jul-1996	54.13	-6.99	11.60	-10.52	86.10	82.08	22.23	10.59	5.66	66.73
Aug-1996	48.45	-11.48	11.46	-9.90	79.14	79.78	20.67	12.19	4.84	64.33
Sep-1996	47.70	-13.41	10.70	-9.75	78.86	64.28	20.16	11.76	4.71	63.33
Oct-1996	48.35	-10.20	11.02	-10.37	72.63	61.18	19.61	10.90	4.83	62.06
Nov-1996	41.74	-14.70	9.19	-8.82	66.30	61.19	17.98	9.42	4.56	56.80
Dec-1996	42.77	-17.62	7.89	-8.51	62.20	51.34	19.05	8.15	4.36	50.11
Jan-1997	46.18	-23.24	5.48	-10.68	66.13	49.63	20.57	9.06	5.01	55.97
Feb-1997	46.44	-21.97	5.11	-13.46	54.70	48.94	19.41	8.08	4.62	56.33
Mar-1997	44.53	-23.18	4.37	-12.84	61.25	56.99	20.23	8.27	4.48	55.66

Data	REACH 150	REACH 154E	REACH 154O	REACH 156	REACH 158	REACH 160	REACH 164	REACH 170	REACH 180	REACH 386
Apr-1997	49.64	-18.63	7.62	-13.77	68.84	49.06	21.28	3.18	4.91	60.50
May-1997	45.14	-17.86	7.99	-14.85	72.25	57.50	22.58	9.90	5.03	63.01
Jun-1997	55.38	-13.84	12.11	-11.29	90.30	69.76	24.55	11.69	5.70	61.85
Jul-1997	48.46	-18.88	10.09	-11.76	79.13	52.06	21.81	14.65	5.04	60.51
Aug-1997	56.95	-13.92	12.31	-11.60	86.15	68.22	24.11	11.56	5.47	63.66
Sep-1997	56.57	-14.07	13.33	-10.99	79.63	76.72	25.01	11.38	5.56	60.73
Oct-1997	54.79	-17.09	9.40	-9.75	68.46	60.36	23.37	10.59	5.41	60.76
Nov-1997	50.91	-19.33	9.29	-8.66	52.28	48.07	21.47	8.48	4.77	57.21
Dec-1997	47.17	-21.91	6.88	-9.44	58.44	45.24	22.09	7.59	4.86	52.92
Jan-1998	41.01	-27.58	1.75	-11.91	67.44	39.07	22.08	3.99	4.99	57.26
Feb-1998	37.13	-29.40	1.64	-12.69	62.55	43.01	21.63	6.23	5.14	54.65
Mar-1998	44.60	-24.32	2.88	-12.22	59.36	52.69	22.40	8.44	5.02	56.15
Apr-1998	42.47	-29.43	2.41	-12.53	52.91	48.75	22.34	7.90	5.16	58.82
May-1998	51.82	-18.23	10.82	-13.15	69.94	72.43	25.16	11.09	6.11	60.88
Jun-1998	53.90	-15.10	13.57	-14.39	92.80	81.48	27.37	11.67	6.68	57.20
Jul-1998	49.93	-11.56	14.89	-15.16	99.15	79.44	28.41	13.05	7.01	62.01
Aug-1998	56.86	-13.03	14.40	-14.08	98.29	79.96	27.57	11.78	6.92	60.31
Sep-1998	49.89	-11.31	15.77	-13.62	90.42	81.74	29.68	12.21	7.15	60.99
Oct-1998	56.91	-12.08	13.76	-12.53	66.91	71.06	28.67	11.89	6.49	52.64
Nov-1998	53.78	-13.58	10.88	-11.45	55.16	61.06	25.26	10.87	5.38	55.87
Dec-1998	45.49	-18.20	7.99	-10.06	45.72	56.86	24.81	8.57	5.04	48.04
Jan-1999	51.86	-24.60	6.50	-11.40	66.45	55.03	24.87	6.83	4.91	70.89
Feb-1999	50.30	-27.33	5.99	-11.29	58.64	53.74	23.88	7.54	5.32	72.08
Mar-1999	52.00	-25.43	7.99	-12.84	67.71	55.74	25.35	7.90	5.86	72.15
Apr-1999	55.42	-18.15	9.16	-13.77	54.40	72.48	28.25	10.00	5.91	70.58
May-1999	58.92	-16.29	8.95	-13.46	72.26	71.17	30.17	9.56	6.14	71.40
Jun-1999	59.34	-18.68	10.39	-13.62	87.00	76.52	31.96	11.37	6.44	74.13
Jul-1999	54.73	-17.60	9.86	-14.08	86.37	76.33	31.22	8.68	6.64	73.31
Aug-1999	58.83	-11.56	15.48	-14.23	95.01	103.68	32.85	12.76	7.39	73.91
Sep-1999	59.04	-10.61	14.77	-14.39	84.74	94.88	31.04	12.56	7.37	73.96
Oct-1999	56.32	-11.36	11.75	-12.07	57.40	77.78	27.30	10.69	6.62	73.17
Nov-1999	56.83	-10.18	11.20	-11.60	57.97	69.24	25.69	10.07	6.04	72.27
Dec-1999	48.35	-10.18	10.85	-9.75	64.64	70.11	24.81	9.58	5.27	71.84
Jan-2000	44.01	-14.57	10.14	-11.60	63.86	60.58	23.96	8.62	4.35	51.51
Feb-2000	42.40	-15.73	10.07	-11.91	62.97	54.27	25.02	8.56	4.88	51.04
Mar-2000	44.73	-21.04	7.56	-14.85	66.74	54.92	26.20	9.26	4.58	56.36
Apr-2000	33.92	-23.75	6.66	-12.69	62.22	58.54	27.51	8.24	4.16	50.11
May-2000	43.38	-13.34	12.21	-12.53	78.51	88.03	31.10	11.35	5.05	56.91
Jun-2000	44.26	-12.35	12.55	-14.85	79.39	90.06	33.83	11.27	5.19	57.62
Jul-2000	40.47	-11.22	14.61	-15.94	85.40	94.72	33.51	10.90	5.14	55.71
Aug-2000	43.78	-12.35	12.88	-14.18	89.08	86.33	32.98	10.52	5.75	53.75
Sep-2000	42.48	-13.35	12.05	-13.72	73.51	68.06	29.70	10.19	4.82	51.07

Data	REACH 150	REACH 154E	REACH 154O	REACH 156	REACH 158	REACH 160	REACH 164	REACH 170	REACH 180	REACH 386
Oct-2000	44.31	-11.06	12.30	-11.81	61.46	75.16	30.50	10.27	5.07	48.89
Nov-2000	39.03	-15.33	9.62	-11.04	58.82	60.40	27.66	7.43	4.60	52.91
Dec-2000	40.81	-13.53	11.38	-9.75	51.00	55.77	26.64	8.02	4.60	39.35
Jan-2001	42.19	-19.94	7.08	-11.60	65.20	61.94	29.94	7.72	4.74	50.96
Feb-2001	36.19	-24.11	6.07	-11.91	64.75	53.06	25.86	6.76	5.00	44.08
Mar-2001	32.04	-29.73	2.59	-14.85	55.58	46.64	25.71	6.36	4.36	55.88
Apr-2001	37.16	-19.54	6.33	-12.69	55.95	51.52	25.66	8.16	4.34	51.38
May-2001	42.09	-14.72	10.11	-12.53	59.82	59.67	29.29	8.62	5.05	53.33
Jun-2001	39.55	-20.33	9.38	-14.85	67.51	73.46	32.65	8.26	5.54	59.20
Jul-2001	43.78	-17.50	11.20	-15.94	63.56	64.57	30.19	9.48	5.29	56.57
Aug-2001	40.20	-16.52	9.32	-14.23	78.84	70.57	32.46	7.99	5.69	55.24
Sep-2001	43.13	-14.59	10.82	-13.15	83.48	76.30	34.90	9.14	5.51	59.80
Oct-2001	41.13	-14.56	11.46	-10.83	73.80	70.20	32.05	9.23	5.10	55.37
Nov-2001	41.44	-15.17	10.86	-10.06	54.67	67.05	31.51	8.98	4.81	54.82
Dec-2001	42.51	-18.09	9.94	-9.44	59.72	65.12	30.34	6.78	4.77	43.29
Jan-2002	39.88	-26.77	-1.32	-10.68	65.22	51.73	24.50	14.09	5.95	52.35
Feb-2002	40.34	-18.72	1.08	-10.37	56.43	49.83	25.66	15.50	5.76	57.49
Mar-2002	39.43	-22.28	-0.82	-12.07	63.97	56.81	27.29	14.41	6.06	51.92
Apr-2002	39.32	-21.97	1.35	-13.77	64.98	59.39	30.71	12.17	6.25	58.66
May-2002	41.02	-20.89	0.47	-13.46	66.69	69.39	32.81	15.58	6.80	57.07
Jun-2002	43.75	-14.16	4.60	-14.39	69.53	80.76	37.85	15.95	7.45	60.59
Jul-2002	39.86	-15.63	5.43	-14.54	82.04	76.73	38.99	16.13	7.86	58.45
Aug-2002	44.45	-14.39	6.26	-14.70	88.40	89.83	39.73	18.39	7.75	61.28
Sep-2002	41.74	-16.25	2.52	-14.39	75.72	75.28	35.11	14.70	7.18	59.29
Oct-2002	39.72	-17.02	1.37	-13.62	68.41	63.96	32.22	12.43	6.77	65.87
Nov-2002	34.45	-23.52	-2.06	-13.62	41.36	54.65	29.98	14.70	6.03	53.11
Dec-2002	33.82	-33.42	-3.60	-14.54	45.89	54.31	29.97	12.78	5.86	43.16
Jan-2003	39.90	-22.28	1.47	-11.60	60.17	53.49	30.61	15.45	6.43	50.92
Feb-2003	33.35	-34.04	-2.74	-14.23	57.36	45.68	28.82	13.25	6.20	44.53
Mar-2003	31.29	-33.11	-2.35	-15.78	46.81	49.27	28.92	13.57	6.24	57.71
Apr-2003	33.63	-21.97	0.93	-13.77	51.76	64.23	31.75	14.36	6.32	53.89
May-2003	30.24	-42.55	-6.89	-17.48	64.26	47.11	31.34	12.41	6.61	49.73
Jun-2003	37.55	-17.48	0.24	-13.92	66.58	63.72	33.85	15.57	6.99	55.98
Jul-2003	35.09	-32.18	-1.21	-16.71	69.15	62.90	33.07	11.80	7.32	54.89
Aug-2003	41.65	-15.78	2.36	-13.31	74.94	69.37	37.01	12.64	7.02	59.03
Sep-2003	40.29	-14.39	4.17	-12.38	75.61	71.58	39.30	13.19	6.94	57.96
Oct-2003	41.10	-13.62	5.22	-10.06	58.44	56.26	36.96	13.61	6.54	58.86
Nov-2003	35.75	-15.16	3.73	-10.68	47.96	49.81	31.82	11.22	6.14	49.67
Dec-2003	37.79	-17.17	3.53	-10.06	56.43	38.29	30.54	9.69	6.11	47.38
Jan-2004	39.02	-20.27	1.32	-9.13	59.61	32.51	30.62	10.56	6.10	54.29
Feb-2004	35.42	-25.84	-1.02	-14.08	54.22	32.11	30.09	9.87	6.19	52.57
Mar-2004	36.82	-20.73	0.16	-12.53	69.37	41.01	32.43	10.68	6.78	53.77

Data	REACH 150	REACH 154E	REACH 154O	REACH 156	REACH 158	REACH 160	REACH 164	REACH 170	REACH 180	REACH 386
Apr-2004	37.14	-17.02	3.90	-11.60	65.78	55.29	36.99	11.48	6.64	51.63
May-2004	38.53	-16.56	4.93	-11.29	83.30	58.70	38.60	11.19	6.89	59.09
Jun-2004	39.64	-17.17	5.20	-12.22	86.02	60.11	37.84	10.89	7.21	57.54
Jul-2004	42.91	-17.33	6.05	-12.69	88.03	65.83	37.96	11.32	7.07	57.45
Aug-2004	45.14	-15.16	6.06	-14.85	88.04	68.94	39.14	12.37	7.01	60.94
Sep-2004	40.58	-19.19	4.15	-15.94	78.39	52.51	35.85	11.38	6.78	51.31
Oct-2004	37.18	-13.15	4.46	-11.76	67.90	51.23	35.43	11.28	6.42	59.20
Nov-2004	22.97	-25.53	-1.93	-12.69	58.14	40.17	32.74	8.94	6.34	49.62
Dec-2004	35.22	-27.69	-0.28	-13.46	61.00	41.21	31.82	9.06	6.24	51.71
Jan-2005	40.89	-18.41	3.04	-12.84	69.65	42.85	31.30	11.03	6.11	53.47
Feb-2005	33.27	-25.68	-0.42	-17.17	70.91	39.94	30.70	9.41	6.10	50.75
Mar-2005	32.26	-26.92	-0.81	-18.10	63.60	37.07	31.46	9.86	6.28	50.22
Apr-2005	31.67	-25.68	-0.61	-17.95	66.80	40.57	33.89	9.10	6.74	67.52
May-2005	40.00	-16.25	4.20	-15.01	76.43	64.79	39.79	11.23	6.79	55.41
Jun-2005	42.93	-17.48	3.85	-16.40	81.69	62.43	39.02	13.24	7.25	59.35
Jul-2005	37.05	-23.98	1.31	-20.27	79.90	46.84	38.97	10.00	7.06	55.44
Aug-2005	42.34	-17.33	4.92	-15.47	84.89	56.08	39.75	12.54	7.32	61.52
Sep-2005	45.61	-14.85	7.60	-14.54	80.37	70.68	43.56	13.18	7.19	63.42
Oct-2005	42.26	-14.54	5.24	-14.39	71.81	63.64	38.70	12.09	6.76	59.16
Nov-2005	37.58	-16.40	4.39	-14.08	54.36	52.12	35.57	11.59	7.01	51.06
Dec-2005	34.28	-21.04	2.11	-14.85	53.85	38.44	32.36	9.88	6.58	47.34
Jan-2006	36.70	-24.29	-0.74	-15.87	76.83	28.78	32.00	10.03	6.50	49.74
Feb-2006	36.25	-23.83	0.34	-16.86	80.39	30.28	30.27	10.97	6.41	51.49
Mar-2006	37.08	-22.43	1.36	-16.71	89.76	36.43	31.37	11.26	6.70	55.56
Apr-2006	35.34	-21.66	2.07	-16.40	87.87	49.00	35.08	10.81	6.76	50.38
May-2006	40.31	-16.25	5.35	-12.53	89.83	69.68	37.57	11.46	6.98	57.63
Jun-2006	42.78	-14.39	5.83	-11.91	99.30	85.68	43.69	15.59	7.50	63.54
Jul-2006	41.07	-14.08	7.20	-11.91	101.46	85.04	43.89	14.08	7.41	61.93
Aug-2006	40.64	-12.38	5.07	-11.91	104.99	77.47	42.62	14.73	8.20	57.34
Sep-2006	42.14	-13.00	5.08	-11.91	88.01	64.50	36.11	10.79	7.47	51.06
Oct-2006	38.62	-13.62	3.69	-11.91	84.37	59.07	36.73	9.86	6.94	53.61
Nov-2006	34.37	-14.85	2.30	-13.62	82.53	44.76	32.61	8.17	6.57	54.48
Dec-2006	39.01	-13.62	4.61	-11.45	73.30	41.30	30.20	8.17	5.84	46.35
Jan-2007	34.42	-18.41	1.51	-12.38	80.88	39.61	30.15	7.86	5.79	54.14
Feb-2007	38.98	-17.33	1.30	-12.53	82.08	44.46	30.21	9.11	5.67	51.58
Mar-2007	37.09	-16.71	2.99	-12.38	81.33	51.73	33.54	8.21	6.07	45.89
Apr-2007	38.69	-13.77	4.52	-11.45	86.16	54.84	36.93	9.20	5.91	51.06
May-2007	42.37	-11.45	8.70	-11.76	95.08	75.77	47.50	12.70	7.08	56.09
Jun-2007	41.19	-9.13	7.68	-12.38	96.34	75.56	46.47	12.05	7.00	56.52
Jul-2007	39.12	-10.37	5.96	-12.07	100.00	58.90	41.03	10.64	6.47	46.68
Aug-2007	40.06	-10.37	9.58	-13.62	109.25	81.85	48.15	14.92	7.38	45.86
Sep-2007	38.00	-28.31	8.54	-11.29	102.39	68.53	45.33	13.49	6.71	48.92

Data	REACH 150	REACH 154E	REACH 154O	REACH 156	REACH 158	REACH 160	REACH 164	REACH 170	REACH 180	REACH 386
Oct-2007	36.45	-10.37	5.67	-10.37	95.23	54.62	35.37	11.23	6.81	45.69
Nov-2007	33.71	-11.14	4.68	-8.66	75.85	33.38	29.78	9.97	5.20	37.66
Dec-2007	35.38	-12.69	4.56	-8.97	87.79	29.15	30.06	9.02	5.13	31.78

Appendix E: Monthly USGS Data at Rome, GA

USGS
National Water Information System: Web Interface

USGS Water Resources
Data Category:
Site Information Geographic Area:
United States GO

Click to hide News Bulletins

- August 8, 2013
- Try our new mobile-friendly water data site from your mobile device!
- New improved user interface.
- Full News

USGS 02397000 COOSA RIVER NEAR ROME, GA

Stream Site

DESCRIPTION:
Latitude 34°12'01", Longitude 85°15'24" NAD27
Floyd County, Georgia, Hydrologic Unit 03150103
Drainage area: 4,040.00 square miles
Contributing drainage area: 4,040 square miles
Datum of gage: 553.05 feet above NGVD29.

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Current / Historical Observations (availability statement)	2007-10-01	2013-08-15	
Daily Data			
Temperature, water, degrees Celsius	1986-02-13	2013-08-14	9417
Precipitation, total, inches	2000-12-14	2013-08-14	4402
Discharge, cubic feet per second	1896-10-01	2013-08-14	30478
Gage height, feet	1971-10-01	2013-08-14	15148
Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius	2005-03-12	2007-01-09	1910
Dissolved oxygen, water, unfiltered, milligrams per liter	2005-03-12	2006-12-14	1787
pH, water, unfiltered, field, standard units	2005-03-12	2007-01-09	1977
Chlorophyll, total, water, fluorometric, 650-700 nanometers, in situ sensor, micrograms per liter	2005-03-12	2007-01-07	1903
Daily Statistics			
Temperature, water, degrees Celsius	1986-02-13	2012-09-30	9101
Discharge, cubic feet per second	1896-10-01	2012-09-30	30166
Gage height, feet	1971-10-01	2012-09-30	14832
Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius	2005-03-12	2007-01-09	632
Dissolved oxygen, water, unfiltered, milligrams per liter	2005-03-12	2006-12-14	595
Chlorophyll, total, water, fluorometric, 650-700 nanometers, in situ sensor, micrograms per liter	2005-03-12	2007-01-07	633
Monthly Statistics			
Temperature, water, degrees Celsius	1986-02	2012-09	
Discharge, cubic feet per second	1896-10	2012-09	
Gage height, feet	1971-10	2012-09	
Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius	2005-03	2007-01	
Dissolved oxygen, water, unfiltered, milligrams per liter	2005-03	2006-12	

Termination: Monthly statistics

Floyd County, Georgia	Output format:
Hydrologic Unit Code 03150105	WTHI, range of all data
Latitude 34°12'01", Longitude 85°15'24" NAD27	Tab-separated data
Drainage area 4,040.00 square miles	Reservoir output summary
Contributing drainage area 4,040 square miles	
Gage datum 553.05 feet above NGVD29	

Output formats

HTML table of all data

Tab-separated data

Release output Summary

00060, Discharge, cubic feet per second

Monthly mean in ft³/s (Calculation Period: 1973-01-01 -> 2012-09-30)

YEAR	Period-of-record for statistical calculation restricted by use											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1975	10,209	16,649	15,070	10,460	8,828	4,378	3,300	3,585	5,937	8,424	6,578	7,241
1976	12,910	7,604	16,570	14,440	8,748	6,176	10,110	3,301	2,694	2,580	2,974	6,273
1977	7,621	4,171	7,710	34,620	5,712	2,882	2,448	2,420	3,963	5,935	14,130	2,648
1978	16,880	1,933	16,830	16,300	9,284	3,254	2,724	3,872	6,021	3,186	3,967	1,987
1979	14,479	10,042	14,430	23,370	5,000	3,180	4,704	3,321	5,221	7,610	9,110	3,480
1980	9,074	7,880	27,800	21,340	12,830	4,983	3,521	2,944	2,108	2,294	2,239	3,344
1981	3,233	6,544	4,760	3,580	4,072	5,747	2,712	2,490	2,606	1,664	1,962	4,330
1982	16,170	22,010	11,030	11,240	6,584	1,925	3,732	4,015	3,119	3,225	5,557	18,630
1983	7,647	10,900	8,521	11,680	10,100	5,825	3,669	2,951	2,483	2,099	5,913	18,460
1984	12,042	10,110	11,520	12,040	16,670	5,047	7,991	6,800	3,561	3,499	3,000	7,240
1985	6,177	11,260	4,404	2,460	4,400	2,800	2,800	3,280	3,280	3,280	3,680	4,770
1986	2,856	4,167	4,225	2,544	2,331	1,814	1,343	1,333	1,407	1,634	4,944	6,725
1987	8,815	7,409	12,380	5,169	2,043	3,219	2,640	2,067	1,610	1,700	1,665	1,081
1988	5,995	3,798	3,115	3,776	1,631	1,513	1,469	1,611	2,043	1,472	2,872	2,226
1989	8,576	7,324	14,990	9,361	6,026	11,700	10,450	3,842	4,200	3,500	10,480	8,610
1990	16,300	11,100	28,220	10,969	7,127	1,613	4,027	3,728	3,205	1,862	3,624	8,107
1991	7,435	11,060	11,100	7,867	15,748	6,418	4,480	4,053	4,748	5,044	7,728	7,748
1992	5,794	3,794	3,154	11,812	2,465	4,193	3,033	4,008	3,728	3,683	12,970	15,740
1993	16,900	8,170	14,060	6,763	5,514	3,571	3,304	1,900	1,703	2,016	2,949	3,992
1994	6,827	9,200	12,230	17,070	4,718	4,674	5,911	4,782	3,801	6,120	3,463	6,665
1995	6,649	12,660	12,860	1,988	3,959	3,212	2,464	2,235	2,987	6,621	10,980	5,757
1996	12,160	16,470	18,660	10,370	6,324	5,958	2,427	3,504	3,926	6,234	3,726	8,454
1997	12,000	9,760	16,220	16,779	11,940	5,860	5,460	2,499	2,935	6,257	5,287	5,848
1998	11,202	15,380	15,090	8,780	12,500	3,500	3,249	3,249	2,187	2,187	4,156	11,800
1999	3,394	9,444	6,235	4,160	6,323	2,333	6,967	2,472	1,410	1,773	2,693	2,297
2000	3,025	2,912	5,180	11,430	3,515	2,890	2,298	2,234	2,887	1,699	3,495	3,319
2001	5,565	6,864	12,690	6,513	3,774	6,257	5,101	3,738	2,857	2,215	1,937	3,942
2002	7,945	5,079	5,613	7,190	7,079	2,761	2,284	1,800	2,900	2,981	8,114	13,310
2003	6,545	11,400	19,130	16,963	23,480	5,682	14,470	6,875	3,976	3,624	3,056	8,134
2004	5,351	6,474	12,763	6,464	4,782	4,803	3,998	3,498	3,110	3,498	10,330	7,740
2005	2,725	8,104	10,980	6,900	5,518	3,514	13,210	6,825	2,983	2,090	3,962	4,944
2006	6,737	5,448	5,337	3,444	3,940	2,809	3,328	1,587	1,725	2,037	4,578	2,810
2007	5,517	2,922	3,449	2,262	1,485	1,338	1,508	1,337	1,531	1,097	1,395	1,513
2008	1,951	3,541	5,564	3,790	3,216	1,610	1,520	1,657	1,425	1,706	1,886	6,382
2009	11,830	4,279	4,414	9,130	8,626	2,576	1,757	2,190	7,707	15,120	12,436	17,470
2010	12,862	15,692	16,322	7,952	5,782	2,400	2,490	2,091	1,524	1,723	1,780	3,667
2011	1,486	4,504	13,320	12,520	4,379	2,775	1,866	1,697	2,624	1,625	3,228	7,880
2012	6,459	5,163	7,260	3,112	2,860	1,884	1,512	1,691	1,470			
Mean of monthly observations	8,630	5,490	11,000	9,440	6,770	4,410	4,230	3,170	3,090	3,810	5,240	7,010

** No Incomplete data have been used for statistical calculation

Appendix F: Compare Monthly Rome Consumptive Use and Flows

	Average Monthly Flow at Rome (cfs)	Net Georgia Consumptive Use Upstream of Rome (cfs)	Consumptive Use to Flow Ratio
Jan-1994	6,827	160	2%
Feb-1994	9,208	134	1%
Mar-1994	12,230	137	1%
Apr-1994	17,070	181	1%
May-1994	4,718	201	4%
Jun-1994	4,674	226	5%
Jul-1994	5,911	212	4%
Aug-1994	4,783	211	4%
Sep-1994	3,801	209	6%
Oct-1994	6,120	184	3%
Nov-1994	3,463	163	5%
Dec-1994	6,965	157	2%
Jan-1995	6,669	156	2%
Feb-1995	12,680	141	1%
Mar-1995	12,800	144	1%
Apr-1995	3,938	189	5%
May-1995	3,959	206	5%
Jun-1995	3,212	193	6%
Jul-1995	2,464	241	10%
Aug-1995	2,235	215	10%
Sep-1995	2,987	207	7%
Oct-1995	8,621	189	2%
Nov-1995	10,980	171	2%
Dec-1995	5,775	176	3%
Jan-1996	13,160	144	1%
Feb-1996	16,470	153	1%
Mar-1996	18,680	135	1%
Apr-1996	10,370	173	2%
May-1996	6,320	223	4%
Jun-1996	5,958	249	4%
Jul-1996	2,427	267	11%
Aug-1996	3,586	251	7%
Sep-1996	3,592	231	6%
Oct-1996	2,834	222	8%
Nov-1996	5,328	202	4%
Dec-1996	8,454	177	2%
Jan-1997	10,550	178	2%
Feb-1997	9,765	162	2%

	Average Monthly Flow at Rome (cfs)	Net Georgia Consumptive Use Upstream of Rome (cfs)	Consumptive Use to Flow Ratio
Mar-1997	16,230	175	1%
Apr-1997	8,679	183	2%
May-1997	11,960	206	2%
Jun-1997	8,500	251	3%
Jul-1997	4,540	213	5%
Aug-1997	3,469	246	7%
Sep-1997	2,935	247	8%
Oct-1997	6,257	212	3%
Nov-1997	7,567	174	2%
Dec-1997	5,683	167	3%
Jan-1998	11,360	157	1%
Feb-1998	18,560	153	1%
Mar-1998	15,090	170	1%
Apr-1998	19,300	156	1%
May-1998	8,783	225	3%
Jun-1998	5,106	261	5%
Jul-1998	3,013	277	9%
Aug-1998	3,369	272	8%
Sep-1998	2,295	273	12%
Oct-1998	2,011	227	11%
Nov-1998	2,183	199	9%
Dec-1998	4,536	169	4%
Jan-1999	8,384	199	2%
Feb-1999	9,444	189	2%
Mar-1999	6,255	204	3%
Apr-1999	4,160	219	5%
May-1999	6,325	240	4%
Jun-1999	3,531	266	8%
Jul-1999	6,967	261	4%
Aug-1999	2,472	315	13%
Sep-1999	1,410	294	21%
Oct-1999	1,773	241	14%
Nov-1999	2,695	231	9%
Dec-1999	2,797	237	8%
Jan-2000	3,055	197	6%
Feb-2000	2,912	189	6%
Mar-2000	5,180	190	4%
Apr-2000	11,450	181	2%
May-2000	3,515	257	7%

	Average Monthly Flow at Rome (cfs)	Net Georgia Consumptive Use Upstream of Rome (cfs)	Consumptive Use to Flow Ratio
Jun-2000	2,890	263	9%
Jul-2000	2,298	273	12%
Aug-2000	2,234	265	12%
Sep-2000	2,887	222	8%
Oct-2000	1,699	221	13%
Nov-2000	3,495	195	6%
Dec-2000	3,215	173	5%
Jan-2001	5,565	196	4%
Feb-2001	6,864	170	2%
Mar-2001	12,690	153	1%
Apr-2001	6,519	171	3%
May-2001	3,774	199	5%
Jun-2001	6,357	221	3%
Jul-2001	5,101	207	4%
Aug-2001	3,738	229	6%
Sep-2001	2,857	252	9%
Oct-2001	2,215	232	10%
Nov-2001	1,957	207	11%
Dec-2001	3,942	192	5%
Jan-2002	7,945	175	2%
Feb-2002	5,079	183	4%
Mar-2002	5,613	185	3%
Apr-2002	7,190	198	3%
May-2002	7,079	214	3%
Jun-2002	2,760	248	9%
Jul-2002	2,284	255	11%
Aug-2002	1,808	283	16%
Sep-2002	2,900	239	8%
Oct-2002	2,581	220	9%
Nov-2002	8,114	161	2%
Dec-2002	13,510	140	1%
Jan-2003	6,545	185	3%
Feb-2003	11,400	145	1%
Mar-2003	13,150	151	1%
Apr-2003	6,863	187	3%
May-2003	23,490	145	1%
Jun-2003	9,682	212	2%
Jul-2003	14,470	189	1%
Aug-2003	6,879	233	3%

	Average Monthly Flow at Rome (cfs)	Net Georgia Consumptive Use Upstream of Rome (cfs)	Consumptive Use to Flow Ratio
Sep-2003	3,970	242	6%
Oct-2003	3,624	212	6%
Nov-2003	5,056	175	3%
Dec-2003	6,158	165	3%
Jan-2004	6,454	166	3%
Feb-2004	9,361	144	2%
Mar-2004	5,644	181	3%
Apr-2004	4,229	203	5%
May-2004	4,047	235	6%
Jun-2004	3,833	235	6%
Jul-2004	4,802	244	5%
Aug-2004	3,208	253	8%
Sep-2004	8,013	205	3%
Oct-2004	4,884	211	4%
Nov-2004	11,570	156	1%
Dec-2004	14,330	160	1%
Jan-2005	5,735	186	3%
Feb-2005	8,104	165	2%
Mar-2005	10,060	153	2%
Apr-2005	13,000	180	1%
May-2005	5,516	227	4%
Jun-2005	5,314	233	4%
Jul-2005	12,210	195	2%
Aug-2005	4,875	234	5%
Sep-2005	2,583	257	10%
Oct-2005	2,098	228	11%
Nov-2005	2,962	186	6%
Dec-2005	4,944	155	3%
Jan-2006	6,737	163	2%
Feb-2006	5,448	169	3%
Mar-2006	5,327	193	4%
Apr-2006	5,344	204	4%
May-2006	3,940	250	6%
Jun-2006	2,805	295	11%
Jul-2006	2,328	295	13%
Aug-2006	1,587	286	18%
Sep-2006	1,725	238	14%
Oct-2006	2,207	229	10%
Nov-2006	4,578	203	4%

	Average Monthly Flow at Rome (cfs)	Net Georgia Consumptive Use Upstream of Rome (cfs)	Consumptive Use to Flow Ratio
Dec-2006	2,818	185	7%
Jan-2007	5,517	189	3%
Feb-2007	2,922	195	7%
Mar-2007	3,349	201	6%
Apr-2007	2,262	223	10%
May-2007	1,485	280	19%
Jun-2007	1,338	280	21%
Jul-2007	1,508	247	16%
Aug-2007	1,337	293	22%
Sep-2007	1,531	254	17%
Oct-2007	1,097	234	21%
Nov-2007	1,395	177	13%
Dec-2007	1,533	176	11%

Appendix G: Letter from Governor Robert Bentley

OFFICE OF THE GOVERNOR

ROBERT BENTLEY
GOVERNOR



STATE CAPITOL
MONTGOMERY, ALABAMA 36130

(334) 242-7100
FAX: (334) 242-3282

STATE OF ALABAMA

July 15, 2013

Honorable Barbara Boxer
112 Hart Senate Office Building
Washington, D.C. 20510

Honorable David Vitter
516 Hart Senate Office Building
Washington, D.C. 20510

Dear Chairman Boxer and Senator Vitter:

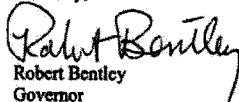
Thank you for sending me a copy of your letter to the Assistant Secretary of the Army for Civil Works dated May 15, 2013. I share your committee's concern about the Corps' disregard of its obligations under the Water Supply Act of 1958 in its management of federal reservoirs in the Alabama-Coosa-Tallapoosa (ACT) River Basin and the Apalachicola-Chattahoochee-Flint (ACF) River Basin.

Congress, in the Water Supply Act, reserved the authority to approve significant reallocations of federal reservoirs for local water-supply purposes. Nonetheless, the Corps has failed to obtain Congressional approval for the major operational changes it has made at Lake Lanier and Lake Allatoona in Georgia to meet Atlanta's water-supply demands.

The Corps' illegal actions at those two reservoirs have significant adverse consequences for the State of Alabama and its citizens. I have attached a report that Alabama's Office of Water Resources prepared showing how the increasing water-supply uses of the two reservoirs has resulted in lower flows for downstream communities. The report also highlights some of the resulting negative consequences to Alabama.

Like you, I believe that a negotiated solution among the three States is the best way to solve the longstanding dispute concerning the ACT and ACF Basins. But the Corps' adherence to the Water Supply Act is essential if we are going to make any progress in reaching a settlement.

Sincerely,


Robert Bentley
Governor

c: Senator Richard Shelby
Senator Jeff Sessions

July 12, 2013

Analysis of Demands, Flows and Operations Upstream from Alabama

Alabama-Coosa-Tallapoosa & Apalachicola-Chattahoochee-Flint River Basins



July 12, 2013

Office of Water Resources

ADECA's Office of Water Resources (OWR) administers programs for river basin management, river assessment, water supply assistance, water conservation, flood mapping, the National Flood Insurance Program and water resources development. Further, OWR serves as the state liaison with federal agencies on major water resources related projects and conducts any special studies on instream flow needs as well as administering environmental education and outreach programs to increase awareness of Alabama's water resources. OWR's mission states that the office plans, coordinates, develops and manages Alabama's water resources, both ground and surface water, in a manner that is in the best interest of the state. This includes recommending policies and legislation, conducting technical studies, implementing and participating in programs and projects and actively representing Alabama's intra and interstate water resource interests.

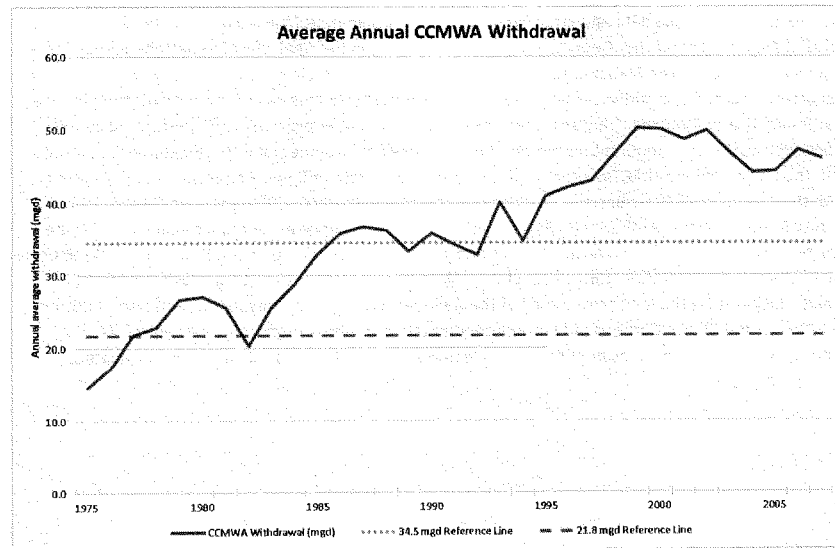
Analysis

OWR reviewed available data and information to create this analysis focused on how the activities of the Corps of Engineers and other Georgia governmental entities in the Apalachicola-Chattahoochee-Flint (ACF) River Basin and the Alabama-Coosa-Tallapoosa (ACT) River Basin have impacted Alabama's water resources. This analysis addresses how the upstream water resources have changed over time in a way that is negative to Alabama. This analysis is meant to complement previous work performed by this office such as the comments submitted regarding the draft environmental impact statement associated with the Corps' proposed ACT manual. This analysis address streamflows, demands and operations in both the ACT and ACF River Basins. Specifically in the ACT River Basin, OWR analyzed (1) the Cobb County Marietta Water Authority (CCMWA) withdrawals and storage accounting calculations; (2) the long term trends of the CCMWA withdrawals and streamflows at Allatoona and Rome; and (3) the Corps use of storage augmentation during droughts at Allatoona. Similar to the ACT analysis, OWR's ACF analysis includes (1) the long term trends of the Gwinnett County withdrawals, streamflows at Buford and Atlanta and (2) the Corps use of storage augmentation during droughts at Lake Lanier. Finally, water-quality impacts as a result of reduced streamflows in the ACT and ACF were also evaluated.

July 12, 2013

CCMWA Growing Withdrawals

The following graph shows the average annual Cobb County Marietta Water Authority (CCMWA) withdrawals from Lake Allatoona. CCMWA has a storage allocation contract for 13,140 acre-feet of Lake Allatoona. 13,140 acre-feet represents 4.62% of Lake Allatoona's conservation storage pool. When the contract was originally written, 13,140 acre-feet was expected to yield 34.5 mgd. The Corps allowed CCMWA to exceed 34.5 mgd since the mid 1980's. The expected yield of CCMWA's 13,140 acre-feet is directly related to the critical yield of Lake Allatoona. Since there have been more severe droughts at Lake Allatoona since the 1960's, the yield of Lake Allatoona (and the expected yield of CCMWA's 13,140 acre-feet) has been reduced over time. The current yield of Lake Allatoona as calculated by the Corps is 729 cfs. Since, CCMWA's expected yield is 4.62% of the critical yield, the current expected yield of CCMWA's 13,140 acre-feet is 21.8 mgd. For reference, both the 34.5 mgd and 21.8 mgd lines are shown on the graph below. CCMWA's average annual withdrawals have been exceeding 21.8 mgd since the early 1980's.

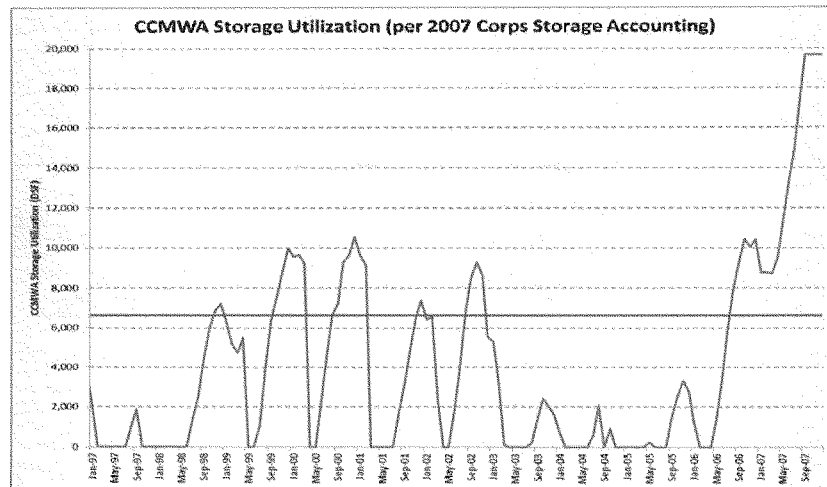


July 12, 2013

CCMWA Storage Accounting

In late 2007, OWR received a storage accounting spreadsheet used by the Corps of Engineers to track CCMWA's utilization of its allocated 13,140 acre-feet (13,140 acre-feet is equal to 6,625 DSF).

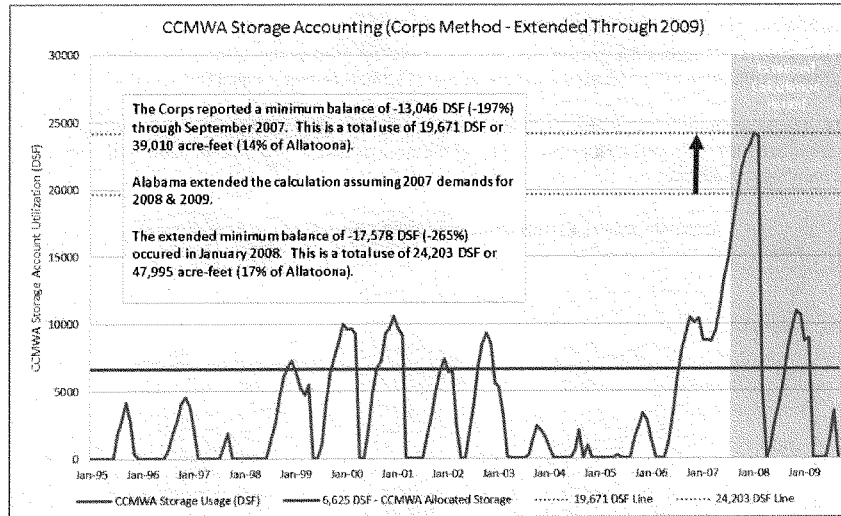
The storage accounting spreadsheet provided by the Corps included monthly calculations through September 2007. The following graph is a plot of the storage utilization data contained in the storage accounting spreadsheet.



The blue line in the above graph shows the CCMWA storage utilization as calculated by the Corps. The red reference line shows the CCMWA allocated storage (13,140 acre-feet or 6,625 DSF). The Corps has allowed CCMWA to exceed its allocated storage amount repeatedly beginning in the late 1990's. The Corps' spreadsheet shows a CCMWA storage utilization of 19,671 DSF (approximately 39,000 acre-feet) in September of 2007. 19,671 DSF storage utilization was comprised of the 6,625 DSF allocated storage and a 13,046 DSF overutilization of storage.

The Corps has yet to provide a set of storage utilization calculations updated after September 2007. Since the drought was not over when the Corps stopped its storage accounting calculations, OWR extended the calculations contained in the Corps spreadsheet through 2009 to get a complete picture of the CCMWA storage utilization. OWR had access to CCMWA withdrawal data through the end of 2007 and simply assumed that the 2008 and 2009 withdrawals were equal to the withdrawals in 2007. The graph of the extended storage utilization is shown below.

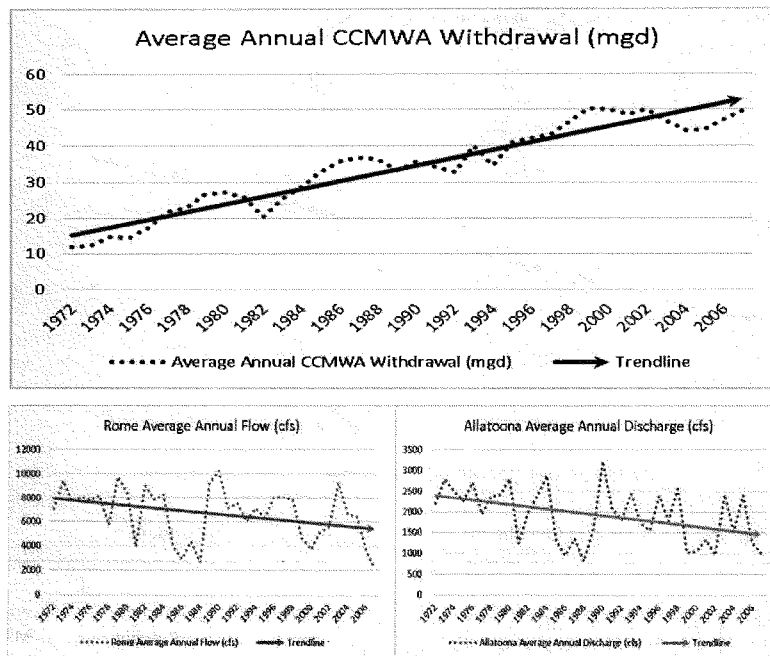
July 12, 2013



July 12, 2013

ACT Long Term Demand and Flow Trend

Thirty-six years of data were analyzed to determine the long-term trend of water supply withdrawals and flows. Specifically, the average annual data for the 1972 – 2007 period was plotted for the following three parameters: (1) Cobb County Marietta Water Authority (CCMWA) withdrawals, (2) Allatoona discharges and (3) Rome flow. A trend line (using Microsoft Excel) was then applied to the data. The 1972 – 2007 period was selected since that was the period of time that OWR had withdrawal data for CCMWA.



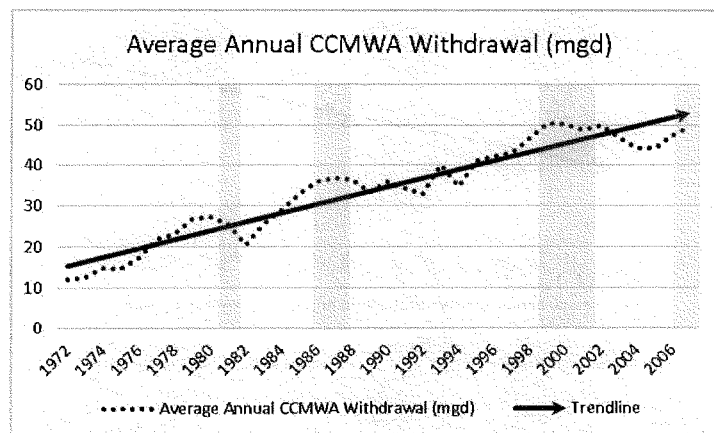
The above three graphs show that where the CCMWA withdrawals have steadily increased over time, the Allatoona discharges and Rome flow have steadily decreased over time. The data used to create the plots is contained in Exhibit A.

July 12, 2013

Corps' Declining Use of Allatoona Storage to Benefit Downstream Flows

OWR analyzed the Corps' operations at Lake Allatoona and how those operations changed over the same time that the CCMWA withdrawals were increasing. Using the same 1972 – 2007 period (period when OWR had access to CCMWA withdrawal data), OWR identified the four significant drought periods. OWR focused on the drought period operations since that is the time when the Corps' releases have the most impact on the flows into Alabama. The drought periods analyzed, and highlighted in the following graph, were 1981, 1986-1988, 1999-2002, and 2007-2008.

The shaded area in the following graph shows the drought periods.



The following table shows the data from the analysis of the Corps' operations of Allatoona.

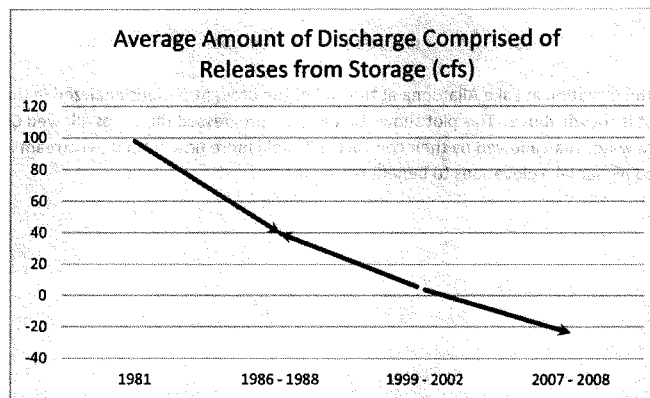
Drought Period (Water Years)	Average Inflow (cfs)	Average Discharge (cfs)	Average Amount of Discharge Comprised of Releases from Storage (cfs)	Percent of Discharge Coming from Storage (%)	End of Drought Period Elevation	Average CCMWA Withdrawal (mgd)
1981	1,128	1,226	98	8%	826.77	26
1986 - 1988	996	1,035	40	4%	829.45	36
1999 - 2002	1,084	1,088	4	0%	831.46	50
2007 - 2008	838	814	-24	-3%	834.40	47

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This table shows that as the CCMWA usage grew over time, the Corps' usage of Allatoona to augment downstream flows decreased over time. In fact, the 2007-2008 average release from storage was negative, indicating that the Corps actually stored water during this critical drought instead of using the project to augment downstream flows.

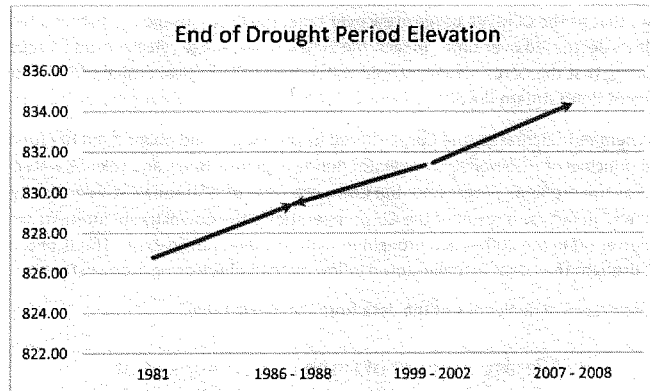
As the CCMWA demands increased, the Corps altered its operations and abandoned the fundamental common sense principal of reservoirs - store water during high flow times and release water when it is needed. In fact as the droughts progressed, the Corps used less of Allatoona's storage to augment downstream flows. In fact, as a result of the Corps' operations, the downstream interests would have actually been better off in the 2007-2008 drought if Allatoona didn't even exist. This is because during the 2007-2008 drought the Corps actually stored inflow instead of releasing it downstream.

The following are graphical depictions of the data from the above table.



The above graph shows that as the droughts progressed, the Corps stopped releasing any previously stored water to augment flows downstream. In fact, in the 2007-2008 drought on average the Corps released less water than it received as inflow.

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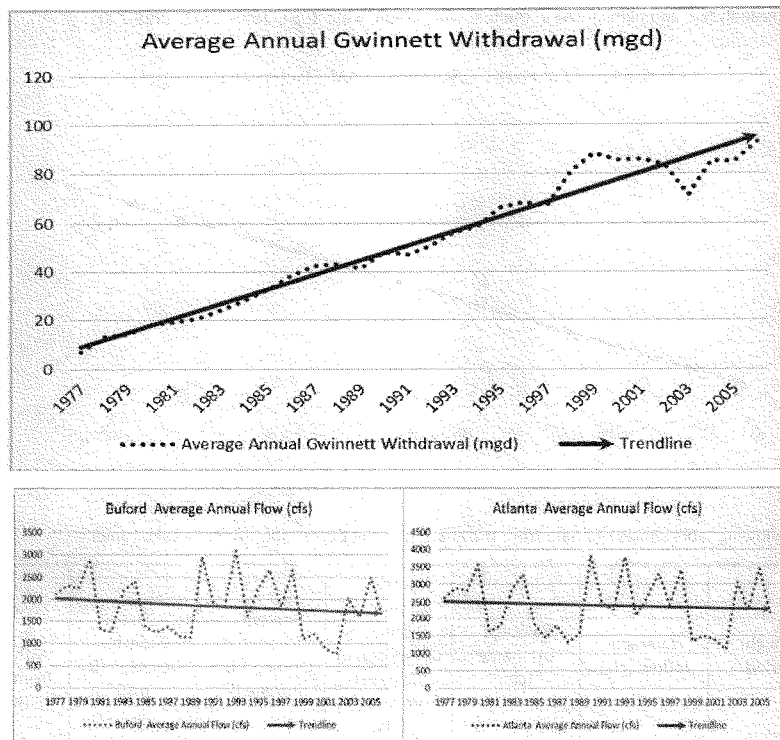


OWR plotted the elevation at Lake Allatoona at the end of the drought periods analyzed in the above table. This plot is shown above. This plot shows that as time progressed the Corps allowed CCMWA to withdraw more water than allowed by their contract, withheld more flow from downstream interests and maintained higher lake elevations to benefit recreation.

July 12, 2013

ACF Long Term Trend of Flows and Demands

Thirty years of data were analyzed to determine the long term trend of water supply withdrawals and flows related to Lake Lanier in the ACF Basin. Specifically, the average annual data for the 1977 – 2006 period was plotted for the following three parameters: (1) Gwinnett County, GA withdrawals, (2) Lake Lanier (Buford) discharges and (3) Atlanta flow. A trend line (using Microsoft Excel) was then applied to the data. The 1977 – 2006 period was selected since that was the period of time that OWR had withdrawal data for Gwinnett.



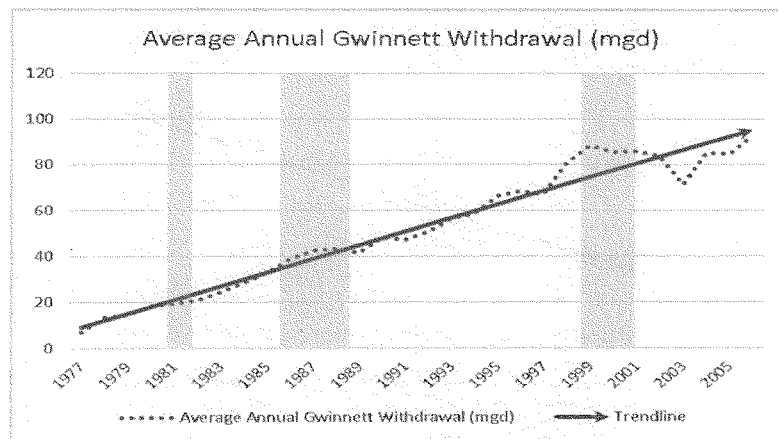
The above three graphs show that where the Gwinnett withdrawals have steadily increased over time, the Buford discharges and Atlanta flow have steadily decreased over time. The data used to create the plots is contained in Exhibit A.

July 12, 2013

Corps' Declining Use of Lanier Storage to Benefit Downstream Flows

OWR analyzed the Corps' operations at Lake Lanier and how those operations changed over the same time that the Gwinnett County withdrawals were increasing.

OWR selected the three most recent droughts that occurred during the 1977 – 2006 period. As discussed in the previous section, the 1977 – 2006 period was selected since it was the period that OWR had access to the Gwinnett withdrawal data. OWR focused on the drought period operations since that is the time when the Corps' releases have the most impact on the flows into Alabama. The drought periods analyzed, and highlighted in the following graph, were 1981, 1986-1988, 1999-2001.



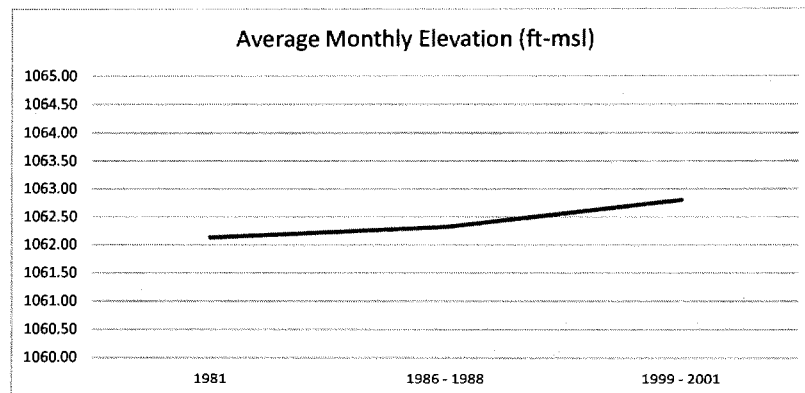
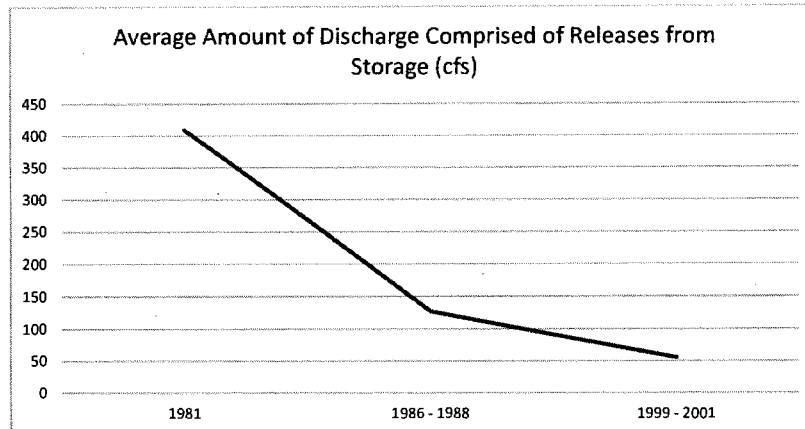
The following table shows the data from the analysis of the Corps' operations of Lake Lanier

Drought Period	Average Inflow (cfs)	Average Discharge (cfs)	Average Amount of Discharge Comprised of Releases from Storage (cfs)	Percent of Discharge Coming from Storage (%)	Average Monthly Elevation (ft-msl)	Average Annual Withdrawal from Lanier (mgd)
1981	918	1,327	409	31%	1062.13	24
1986 - 1988	984	1,111	127	11%	1062.32	47
1999 - 2001	1,015	1,070	55	5%	1062.80	108

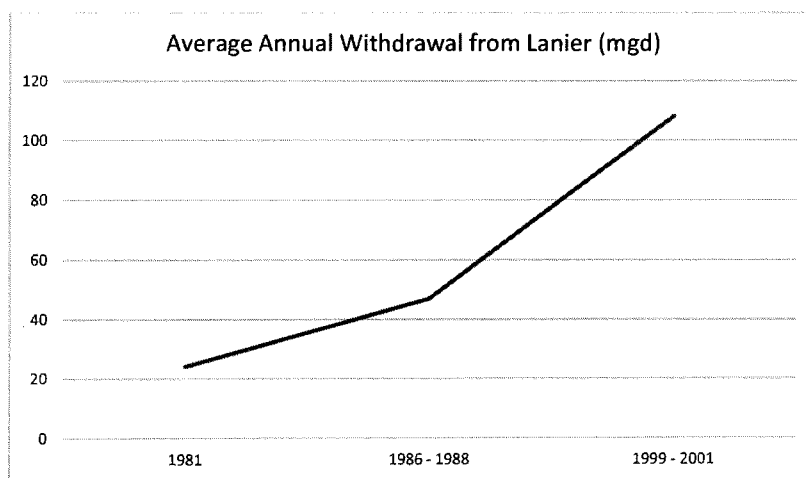
The above table shows that as Gwinnett's usage grew over time, the Corps decreased its use of Lanier's storage to augment downstream flows.

The following are graphical depictions of the data from the above table.

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Water Quality

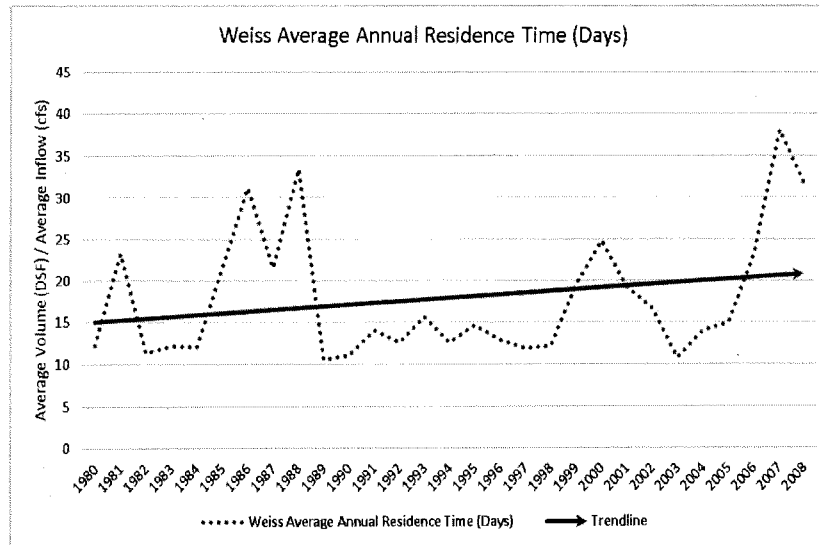
Reduced streamflows at the state line result in adverse water quality conditions in Alabama, such as reduced dissolved oxygen levels in Weiss Reservoir, and may affect protected species and designated critical habitat in the Coosa and Alabama Rivers further downstream. In the recent draft Environmental Impact Statement prepared by the Corps for the ACT manual, the Corps acknowledged that the reduced flows under its proposed alternative would result in adverse downstream environmental impacts, including but not limited to downstream industrial, municipal, and recreational water use in the State of Alabama.

Weiss Lake, the first reservoir on the Coosa River downstream from Lake Allatoona and Carters Lake, is currently listed as impaired by the Alabama Department of Environmental Management (ADEM) due to excessive nutrient loading. ADEM and the U.S. Environmental Protection Agency (USEPA) have adopted a Total Maximum Daily Load (TMDL) for Nutrient Impairment in Weiss Lake. Weiss Lake is susceptible to increased algal productivity during periods of drought. Lower flows resulting in increased residence time also worsen this situation. Residence time is a calculation of the amount of time it takes for water to flow through a reservoir. Generally, the higher the residence time or longer that it takes for water to flow through a reservoir has a negative impact on water quality. If water stays in a reservoir longer, then the water becomes more stagnant which will cause water quality conditions in the lake to decline.

Other water quality parameters are also significantly affected by reduced flow into Weiss Lake and the resulting increase in residence time. These include dissolved oxygen, temperature and pH. Weiss Lake is already experiencing problems with these water quality criteria, especially in time of drought.

As discussed above, Weiss' residence time is a good overall indicator of the expected quality at the lake. With everything else being equal, less flow coming into Weiss will result in higher residence time and in turn lower water quality conditions. The following graphs shows that as the flows entering Alabama have trended down over time, the residence time at Weiss has trended up.

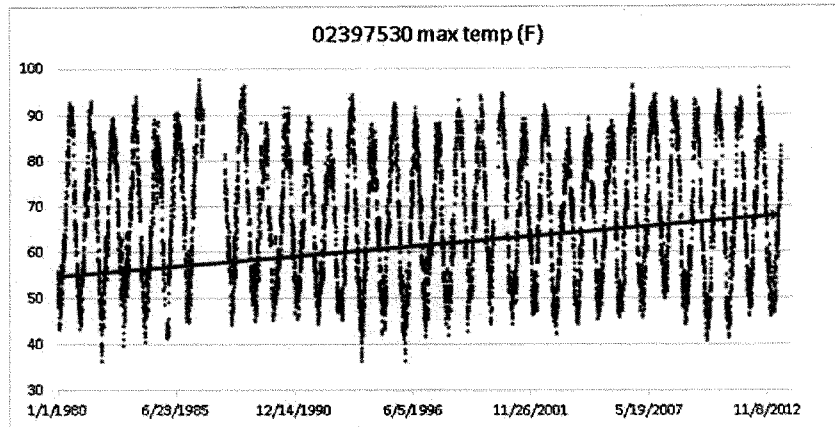
July 12, 2013



In addition to analyzing residence time at Weiss Lake, OWR also analyzed water quality data from the USGS gage located at the stateline on the Coosa River. Two water quality parameters were plotted and are shown below.

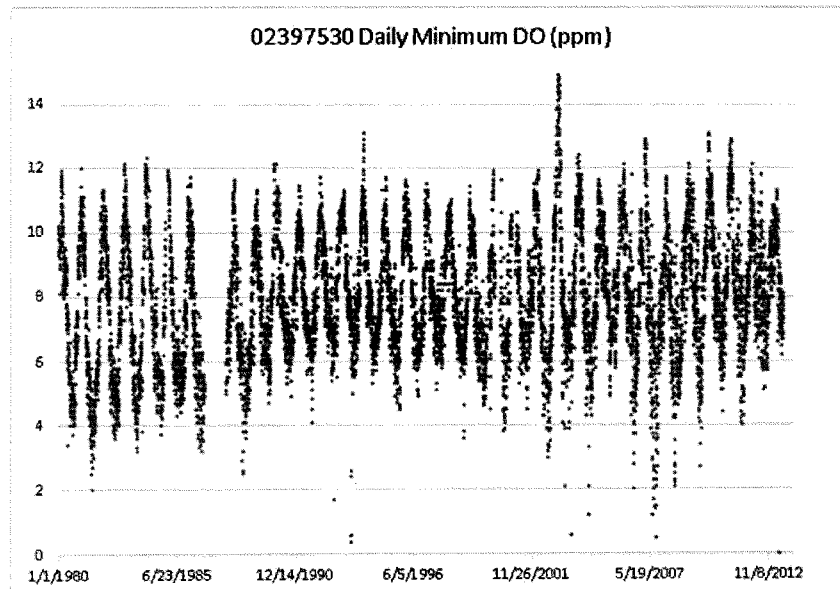
The following graph, shows the maximum daily temperature as recorded at the stateline USGS gage. This graph shows that on numerous occasions Alabama's water quality standard for temperature (90 degrees Fahrenheit) was exceeded. Also, the overall trend of the temperature of the water entering Alabama has been upward over the same period that the Corps has allowed excessive CCMWA withdrawals and altered its operations to withhold more of the inflow during critical drought conditions (as discussed earlier in this report).

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The following graph, shows the minimum daily dissolved oxygen as recorded at the stateline USGS gage. This graph shows that on numerous occasions Alabama's water quality standard for dissolved oxygen (5 mg/l) was not met. This graph shows that the lower dissolved oxygen readings are more likely to occur when the Corps is releasing less water from Allatoona.

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Lastly, with regard to water quality impacts in both the ACT and ACF basins, in 2009 the State of Alabama wrote a letter to the Corps of Engineers requesting action by the Corps to help protect water quality. This letter, attached as Exhibit B, addressed how the Corps operations impacts water quality in both the ACT and ACF basins. This letter highlights some of the water quality problems that had been observed in the recent droughts as well as explaining how the Corps operations directly impact water quality.

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Conclusion

OWR's analysis of the withdrawal data, stream flows and Corps' operational data in both the ACT and ACF River basins has shown that over time:

1. Water withdrawals by Georgia entities for municipal and industrial water supply have increased
2. CCMWA has repeatedly used more storage at Lake Allatoona than it was allowed to use.
3. Flows coming into Alabama have decreased while Georgia parties have withdrawn more and the Corps has held reservoir elevation higher
4. The Corps has altered its operations to the detriment of downstream flow augmentation
5. Water quality, which is highly dependent upon flow, has worsened.

Exhibit A
Data Used for Flow and Demand Trend Plots

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Cobb County Marietta Water Authority Withdrawal Data

WATER WITHDRAWALS -- ALLATOONA LAKE, GEORGIA -- ETOWAH RIVER -- ALABAMA/COOSA RIVER BASIN
Monthly and Annual Withdrawal Totals in Millions of Gallons (MG); Average Daily Withdrawals (MGD); and Annual Peak Day Withdrawal (MG)

COBB COUNTY - MARIETTA WATER AUTHORITY Water Storage Space Contract No. DA-01-078-CIVENG-64-116
Allocated Storage Space, 4.61% (13,140 acre feet) of the project's conservation storage space (285,000 acre feet) needed to yield an annual average of 34.5 mgd of water during droughts equivalent to the 31 month drought from July 30 - Jan 42.

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL ANNUAL (MG)	AVERAGE ANNUAL (MGD)	PEAK DAY (MG)	YTD Days	Peak Day Date
1965																	
1966						37.2	141.4	248.5	214.0	175.6	150.3	128.1	1208.1	3.30			
1967	87.8	87.5	95.6	102.8	143.8	172.8	201.2	249.7	281.8	272.0	257.9	263.4	1822.5	6.02			
1968	269.0	226.1	226.1	254.0	296.1	342.7	366.2	335.6	328.0	295.0	290.7	2508.3	8.85				
1969	293.5	364.7	298.2			356.1			338.2	339.4	321.2	303.7	1948.9	7.19			
1970													0.0				
1971													0.0				
1972													0.0	11.90	15.90		
1973							416.5	443.0	448.9	416.7	380.3	377.9	2477.3	12.49	17.89		
1974	387.9	364.3	398.2	376.6	464.5	487.8	575.5	543.5	496.8	465.2	402.0	429.4	3844.8	14.72	19.10		
1975	391.9	365.0	400.9	416.4	466.7	485.9	479.4	485.2	444.4	483.1	471.1	454.7	3790.5	14.62	22.06		
1976	476.1	419.0	426.8	497.9	456.8	494.0	580.7	559.5	572.3	582.7	538.9	594.3	4477.1	17.29	24.16		
1977	618.7	530.9	572.2	581.5	729.5	790.9	800.7	739.1	685.8	667.7	671.2	553.3	5698.2	21.84	26.72		
1978	808.5	552.2	614.6	670.0	679.9	708.0	817.9	729.1	824.8	787.8	697.1	681.8	5924.0	22.93	30.69		
1979	719.1	650.2	697.5	705.4	799.1	988.3	1044.3	1038.6	852.7	791.8	740.0	723.4	6978.2	26.71	36.38		
1980	711.9	680.5	756.7	754.1	932.9	945.1	1079.6	965.4	915.3	799.7	644.1	688.5	9803.8	27.11	39.58		
1981	665.4	597.9	694.6	818.1	800.9	961.4	1061.0	848.7	798.7	858.5	658.4	597.5	9359.2	25.64	44.10		
1982	560.6	540.1	576.3	490.6	639.7	708.6	750.4	699.4	650.7	626.3	617.7	801.0	7431.4	20.36	27.49		
1983	645.7	579.3	568.3	634.3	729.1	897.0	1023.0	1013.0	860.4	863.2	865.2	740.6	9339.1	25.59	42.63		
1984	724.7	662.1	688.6	757.3	882.9	1089.9	921.4	985.8	1035.8	1007.5	926.8	824.3	10525.9	28.84	42.68		
1985	962.5	858.7	966.3	998.8	1067.4	1054.5	1075.4	1000.0	1059.9	1075.9	898.0	998.5	12003.8	32.80	43.67		

COBB COUNTY - MARIETTA WATER AUTHORITY Water Storage Space Contract No. DA-01-078-CIVENG-64-116													PAGE 2				
MONTHLY TOTALS IN MILLIONS OF GALLONS (MG)													ANNUAL TOTALS				
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL ANNUAL (MG)	AVERAGE ANNUAL (MGD)	PEAK DAY (MG)	YTD Days	Peak Day Date
1965																	
1966						37.2	141.4	248.5	214.0	175.6	150.3	128.1	1208.1	3.30			
1967	87.8	87.5	95.6	102.8	143.8	172.8	201.2	249.7	281.8	272.0	257.9	263.4	1822.5	6.02			
1968	269.0	226.1	226.1	254.0	296.1	342.7	366.2	335.6	328.0	295.0	290.7	2508.3	8.85				
1969	293.5	364.7	298.2			356.1			338.2	339.4	321.2	303.7	1948.9	7.19			
1970													0.0				
1971													0.0				
1972													0.0	11.90	15.90		
1973							416.5	443.0	448.9	416.7	380.3	377.9	2477.3	12.49	17.89		
1974	387.9	364.3	398.2	376.6	464.5	487.8	575.5	543.5	496.8	465.2	402.0	429.4	3844.8	14.72	19.10		
1975	391.9	365.0	400.9	416.4	466.7	485.9	479.4	485.2	444.4	483.1	471.1	454.7	3790.5	14.62	22.06		
1976	476.1	419.0	426.8	497.9	456.8	494.0	580.7	559.5	572.3	582.7	538.9	594.3	4477.1	17.29	24.16		
1977	618.7	530.9	572.2	581.5	729.5	790.9	800.7	739.1	685.8	667.7	671.2	553.3	5698.2	21.84	26.72		
1978	808.5	552.2	614.6	670.0	679.9	708.0	817.9	729.1	824.8	787.8	697.1	681.8	5924.0	22.93	30.69		
1979	719.1	650.2	697.5	705.4	799.1	988.3	1044.3	1038.6	852.7	791.8	740.0	723.4	6978.2	26.71	36.38		
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1985	962.5	858.7	966.3	998.8	1067.4	1054.5	1075.4	1000.0	1059.9	1075.9	898.0	998.5	12003.8	32.80	43.67		

July 12, 2013

USGS Average Annual Allatoona Discharge Data

```

#
#
# US Geological Survey, Water Resources Data
# retrieved: 2013-07-03 14:05:41 EDT      (caww01)
#
# This file contains USGS Surface-Water Annual Statistics
#
# Note: The statistics generated from this site are based on approved daily-
# mean data and may not match those published by the USGS in official
# publications.
# The user is responsible for assessment and use of statistics from this
# site.
# For more details on why the statistics may not match, visit
# http://waterdata.usgs.gov/nwis/?dv_statistics_disclaimer.
#
# ** No Incomplete data have been used for statistical calculation
#
# This file includes the following columns:
#
#
# agency_cd  agency code
# site_no    USGS site number
# parameter_cd
# dd_nu
# year_nu    Water year for value
# mean_va    annual-mean value.
#             if there is not complete record
#             for a year this field is blank
#
#
# Sites in this file include:
# USGS 02394000 ETOWAH RIVER AT ALLATOONA DAM, ABV CARTERSVILLE,GA
#
# Explanation of Parameter Code and dd_nu used in the Statistics Data
# parameter_cd  Parameter Name          dd_nu
#               Location Name
# 00060         Discharge, cubic feet per second      2
#
#
# agency_cd    site_no parameter_cd    dd_nu    year_nu mean_va
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USGS 02394000      00060 2          1951    1259
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USGS 02394000      00060 2          1962    2067
USGS 02394000      00060 2          1963    1952

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July 12, 2013

USGS	02394000	00060	2	1964	3144
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USGS	02394000	00060	2	1972	2205
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USGS	02394000	00060	2	1997	1778
USGS	02394000	00060	2	1998	2572
USGS	02394000	00060	2	1999	1016
USGS	02394000	00060	2	2000	1046
USGS	02394000	00060	2	2001	1332
USGS	02394000	00060	2	2002	956.7
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USGS	02394000	00060	2	2005	2404
USGS	02394000	00060	2	2006	1262
USGS	02394000	00060	2	2007	1001
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July 12, 2013

USGS Average Annual Rome Flow Data

```

#
#
# US Geological Survey, Water Resources Data
# retrieved: 2013-07-03 14:07:18 EDT      (caww01)
#
# This file contains USGS Surface-Water Annual Statistics
#
# Note: The statistics generated from this site are based on approved daily-
# mean data and may not match those published by the USGS in official
# publications.
# The user is responsible for assessment and use of statistics from this
# site.
# For more details on why the statistics may not match, visit
# http://waterdata.usgs.gov/nwis/?dv\_statistics\_disclaimer.
#
# ** No Incomplete data have been used for statistical calculation
#
# This file includes the following columns:
#
#
# agency_cd  agency code
# site_no    USGS site number
# parameter_cd
# dd_nu
# year_nu    Water year for value
# mean_va    annual-mean value.
#             if there is not complete record
#             for a year this field is blank
#
#
# Sites in this file include:
# USGS 02397000 COOSA RIVER NEAR ROME, GA
#
# Explanation of Parameter Code and dd_nu used in the Statistics Data
# parameter_cd  Parameter Name                                dd_nu
#               Location Name
# 00060         Discharge, cubic feet per second              2
#
#
#
# agency_cd  site_no parameter_cd  dd_nu  year_nu mean_va
# 5s         15s   5s      3n      4s      12n
USGS 02397000 00060 2      1950  6691
USGS 02397000 00060 2      1951  6092
USGS 02397000 00060 2      1952  7717
USGS 02397000 00060 2      1953  5912
USGS 02397000 00060 2      1954  5470
USGS 02397000 00060 2      1955  4710
USGS 02397000 00060 2      1956  5263
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USGS 02397000 00060 2      1958  6663
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USGS 02397000 00060 2      1966  5920
USGS 02397000 00060 2      1967  6059

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USGS	02397000	00060	2	1968	7620
USGS	02397000	00060	2	1969	5451
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USGS	02397000	00060	2	1973	9509
USGS	02397000	00060	2	1974	8261
USGS	02397000	00060	2	1975	7116
USGS	02397000	00060	2	1976	8730
USGS	02397000	00060	2	1977	6851
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USGS	02397000	00060	2	1985	4040
USGS	02397000	00060	2	1986	2678
USGS	02397000	00060	2	1987	5032
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USGS	02397000	00060	2	2004	5348
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USGS	02397000	00060	2	2008	2356
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USGS	02397000	00060	2	2012	3895

July 12, 2013

USGS Stats Below Buford Dam

```

#
#
# US Geological Survey, Water Resources Data
# retrieved: 2013-07-05 11:06:09 EDT      (sdww01)
#
# This file contains USGS Surface-Water Annual Statistics
#
# Note: The statistics generated from this site are based on approved daily-
# mean data and may not match those published by the USGS in official
# publications.
# The user is responsible for assessment and use of statistics from this
# site.
# For more details on why the statistics may not match, visit
# http://waterdata.usgs.gov/nwis/?dv_statistics_disclaimer.
#
# ** No Incomplete data have been used for statistical calculation
#
# This file includes the following columns:
#
#
# agency_cd  agency code
# site_no    USGS site number
# parameter_cd
# dd_nu
# year_nu    Water year for value
# mean_va    annual-mean value.
#             if there is not complete record
#             for a year this field is blank
#
#
# Sites in this file include:
# USGS 02334430 CHATTAHOOCHEE RIVER AT BUFORD DAM, NEAR BUFORD, GA
#
# Explanation of Parameter Code and dd_nu used in the Statistics Data
# parameter_cd Parameter Name                dd_nu Location
# Name
# 00060        Discharge, cubic feet per second      2
#
#
# agency_cd    site_no parameter_cd  dd_nu  year_nu mean_va
# 5s      15s      5s      3n      4s      12n
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USGS 02334430      00060  2      1957  855.7
USGS 02334430      00060  2      1958  910.9
USGS 02334430      00060  2      1959  1591
USGS 02334430      00060  2      1960  2397
USGS 02334430      00060  2      1961  2170
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USGS 02334430      00060  2      1969  2012

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July 12, 2013

USGS	02334430	00060	2	1970	1975
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USGS	02334430	00060	2	1995	2248
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July 12, 2013

USGS Stats at Atlanta

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#
#
# US Geological Survey, Water Resources Data
# retrieved: 2013-07-05 11:26:16 EDT      (vaww01)
#
# This file contains USGS Surface-Water Annual Statistics
#
# Note: The statistics generated from this site are based on approved daily-
# mean data and may not match those published by the USGS in official
# publications.
# The user is responsible for assessment and use of statistics from this
# site.
# For more details on why the statistics may not match, visit
# http://waterdata.usgs.gov/nwis/?dv_statistics_disclaimer.
#
# ** No Incomplete data have been used for statistical calculation
#
# This file includes the following columns:
#
#
# agency_cd  agency code
# site_no    USGS site number
# parameter_cd
# dd_nu
# year_nu    Water year for value
# mean_va    annual-mean value.
#             if there is not complete record
#             for a year this field is blank
#
#
# Sites in this file include:
# USGS 02336000 CHATTAHOOCHEE RIVER AT ATLANTA, GA
#
# Explanation of Parameter Code and dd_nu used in the Statistics Data
# parameter_cd Parameter Name                dd_nu Location
Name
# 00060        Discharge, cubic feet per second      7
#
#
# agency_cd    site_no parameter_cd  dd_nu  year_nu mean_va
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USGS  02336000    00060  7    1958    1288
USGS  02336000    00060  7    1959    1898
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USGS  02336000    00060  7    1962    3105
USGS  02336000    00060  7    1963    2614
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July 12, 2013

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July 12, 2013

Snapshot from the ACF Factual Appendix – Gwinnett Annual Withdrawal Data

Table 1a - M&I Storage Allocation Necessary to Support Withdrawals Pursuant to the Holdover Contracts (based on 1,087,600 and 947 yield method)

YEAR	Withdrawals								Critical Yield 947 Formula		
	GWINNETT COUNTY, GA ¹		CITY OF CUMMING, GA ²		CITY OF GAINESVILLE ³		ATLANTA REGIONAL COMMISSION ³		TOTAL CHALLENGED WITHDRAWALS (Max NTE or ACTUAL)	Total Challenged Storage ⁴ (based on MGD947 x 1,087,600)	% of conservation storage of 1,087,600
	MGD	NTE MGD ³	MGD	NTE MGD ³	MGD	Reduced MGD ²	MGD	NTE MGD ³	MGD	Acres-Feet	
1977	8.79	40.00			8.03	0.03			88.82	45,954.77	4.23%
1978	13.49	40.00			9.60	1.60			41.60	47,787.14	4.39%
1979	14.34	40.00			10.78	2.78			42.78	49,111.79	4.52%
1980	18.35	40.00	1.88	2.50	10.41	2.41			44.91	51,557.06	4.74%
1981	19.36	40.00	1.67	2.50	10.04	2.04			46.44	51,166.49	4.80%
1982	20.71	40.00	2.03	2.50	10.45	2.45			48.96	51,682.97	4.74%
1983	24.44	40.00	2.40	2.50	10.31	2.31			48.81	51,442.35	4.73%
1984	28.34	40.00	2.44	2.50	10.12	2.12			44.62	51,224.33	4.71%
1985	32.93	40.00	2.73	5.00	10.06	2.06			47.86	55,068.47	5.06%
1986	38.61	40.00	3.22	5.00	10.34	2.34			47.34	54,346.71	5.00%
1987	42.33	42.33	3.39	5.00	10.81	12.00	241.52	50.00	109.33	126,511.74	11.54%
1988	43.14	53.00	3.47	10.00	10.71	12.00	235.18	50.00	125.00	143,581.02	13.19%
1989	41.59	53.00	3.38	10.00	10.53	12.00	231.35	50.00	125.00	143,581.02	13.19%
1990	48.26	53.00	4.38	10.00	11.30	12.00	241.32	50.00	135.00	143,581.02	13.19%
1991	47.24	53.00	4.41	10.00	11.63	12.00	237.82	50.00	135.00	143,581.02	13.19%
1992	50.58	53.00	4.33	10.00	12.22	12.00	239.83	50.00	135.00	143,581.02	13.19%
1993	56.43	56.43	5.17	10.00	11.00	12.00	236.26	50.00	128.43	147,438.69	13.56%
1994	58.49	58.49	5.45	10.00	12.93	12.00	269.57	50.00	130.49	149,803.59	13.77%
1995	66.15	66.15	7.05	10.00	13.54	12.00	279.51	50.00	138.15	158,597.33	14.58%
1996	68.59	68.59	8.86	10.00	13.80	12.00	277.15	50.00	140.59	161,398.47	14.84%
1997	66.85	66.85	10.04	10.04	14.08	12.00	278.41	50.00	138.89	159,446.86	14.66%
1998	80.77	80.77	10.51	10.51	15.84	12.00	307.88	50.00	153.28	175,896.79	16.18%
1999	88.38	88.38	12.99	12.99	16.98	12.00	321.37	50.00	163.37	187,550.10	17.24%
2000	83.33	83.33	11.60	11.60	17.85	12.00	318.40	50.00	168.63	187,457.94	16.78%
2001	85.77	85.77	12.37	12.37	17.05	12.00	307.87	50.00	160.14	183,841.63	16.90%
2002	83.80	83.80	11.05	11.05	17.29	12.00	321.79	50.00	166.85	188,065.08	16.56%
2003	71.28	71.28	11.95	11.95	16.83	12.00	289.40	50.00	145.23	166,725.33	15.33%
2004	84.97	84.97	11.27	11.27	17.91	12.00	302.79	50.00	168.24	181,640.82	16.70%
2005	84.74	84.74	10.53	10.53	17.89	12.00	303.47	50.00	157.37	180,547.35	16.60%
2006	92.91	92.91	18.79	18.79	18.99	12.00	315.78	50.00	173.79	199,499.02	18.33%

1 Data can be found in the record at ACF044236 (Gwinnett); ACF044239 (Cumming); ACF044241 (Gainesville); and ACF044244 (ARC).

2 Reduced withdrawals reflect the highest of actual total pumped or not-to-exceed amount (20 MGD) less 8 MGD related to the City of Gainesville's relocation contract. ACF014226.

3 Not-to-exceed ("NTE") amounts are equal to the higher of the contract amount or actual withdrawals. ARC

July 12, 2013

Exhibit B
2009 Letter to the Corps of Engineers

July 12, 2013

ONIS "TREY" GLENH, III
DIRECTOR



Alabama Department of Environmental Management
adem.alabama.gov
1400 Coliseum Blvd. 36110-2058 • Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-2700
FAX (334) 271-2950

September 9, 2009

BOB RILEY
GOVERNOR

Brigadier General Todd T. Semonite
South Atlantic Division Commander
USACE South Atlantic Division
60 Forsyth Street SW
Atlanta, Georgia 30303

RE: Water Quality Impacts to Alabama

Dear General Semonite:

The Alabama Department of Environmental Management (ADEM) is responsible for the protection and management of the quality of Alabama's surface waters. Recent data raises significant issues regarding water quality. By this letter, I am requesting action by your organization to protect water quality.

In 1996, the ADEM identified five of the six reservoirs on the Coosa River within the State of Alabama's borders as being impaired, namely Weiss Lake, Neely Henry Lake, Logan Martin Lake, Lay Lake and Mitchell Lake. In October 2008, ADEM and EPA Region 4 established Final Nutrient and Organic Enrichment/Dissolved Oxygen (OE/DO) Total Maximum Daily Loads (TMDLs) for the aforementioned reservoirs. The 2008 TMDLs were based on protection of water quality standards, namely dissolved oxygen and chlorophyll a criteria/targets specific to each of the five reservoirs. The TMDLs for total phosphorus (TP) were based on critical flow conditions during a specific period of record. More specifically, the Weiss Lake TMDL established TP reductions of 30% at the AL/GA Stateline for both the Chattooga and Coosa rivers.

Water quality modeling conducted as part of the TMDL process demonstrated that retention time is directly correlated to increased algal production in Weiss Lake as well as in the downstream reservoirs. Therefore, if flows in the Coosa River are decreased as a result of decreased releases from Carters and Allatoona reservoirs and/or other proposed withdrawals within the Coosa River Basin in Georgia, impacts to water quality are imminent. In addition, modeling demonstrates that if flows into Weiss Lake are reduced from the critical condition flows used in the TMDL, then allowable phosphorus loads from Georgia must be further reduced in order to maintain applicable water quality standards.

Based on water quality monitoring data collected by ADEM, there are documented cases of degraded water quality during past drought years in the Coosa and Tallapoosa system. These impacts resulted in reduced levels of dissolved oxygen and increased algal biomass. Such water quality conditions during drought conditions can cause considerable stress on aquatic communities in the river and reservoir systems. This can even include increased fish & mussel kills. The diminished water quality also creates greater challenges to industries and municipalities in meeting the conditions of their permits and complying with applicable water quality standards. Diminished water quality also has adverse impacts on water treatment costs for public water supply systems.

Birmingham Branch
130 Vulcan Road
Birmingham, AL 35204-4702
(205) 942-6108
(205) 941-1863 (fax)

Decatur Branch
2711 Sandlot Road, S.W.
Decatur, AL 35601-1831
(256) 353-1718
(256) 340-9353 (fax)



Mobile Branch
2204 Dauphinier Road
Mobile, AL 36688-1171
(251) 470-3405
(251) 478-2293 (fax)

Mobile - Coastal
1171 Confederation Drive
Mobile, AL 36615-1421
(251) 433-6533
(251) 432-6548 (fax)

July 12, 2013

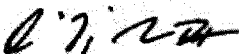
Brigadier General Todd T. Semonite
9/9/2009
Page 2 of 2

In addition, continued economic development within these river basins is dependent upon a reliable and adequate supply of clean water. Decreased water quantity and quality in the ACT restricts the ability of local communities to attract new businesses or expand existing businesses and affects the quality of life of Alabama citizens living, working and recreating along these rivers.

The Department is committed to protecting Alabama's water resources for the citizens of Alabama. With that said, we are deeply concerned that historical and current actions of the USACE-SAD with respect to reservoir operations have and will continue to directly impact waters of the State of Alabama. By this letter I am asking for the Corps to ensure that its operations of Lake Allatoona and Carters Lake include releases that will result in stream flows entering Alabama that are consistent with those flows used in setting the water quality standards described in this letter. For your convenience I have attached a graph depicting the Coosa River flow used in setting the water quality needs.

Lastly, the NPDES discharge permits issued to facilities in Alabama for discharges to the Chattahoochee River in the Phenix City area are based on a seven-day average river flow of 1,386 cfs. Since January of 2009 seven-day average flows from the West Point Dam have been less than 1,386 cfs on 68 occasions and 57 of those occurrences were between June 1 and August 31. Between June 16 and July 16 dissolved oxygen levels in the Chattahoochee River upstream of the MeadWestvaco facility declined to less than 5.0 mg/l on at least 9 days (see the attached chart). Each time the dissolved oxygen concentration declined to less than 5.0 mg/l the seven-day average flow released from the West Point Dam was less than 1,386 cfs. Therefore the COE should ensure that at least 1,386 cfs passes by Phenix City on a 7 day average to ensure compliance with Alabama's water quality standards.

Sincerely,

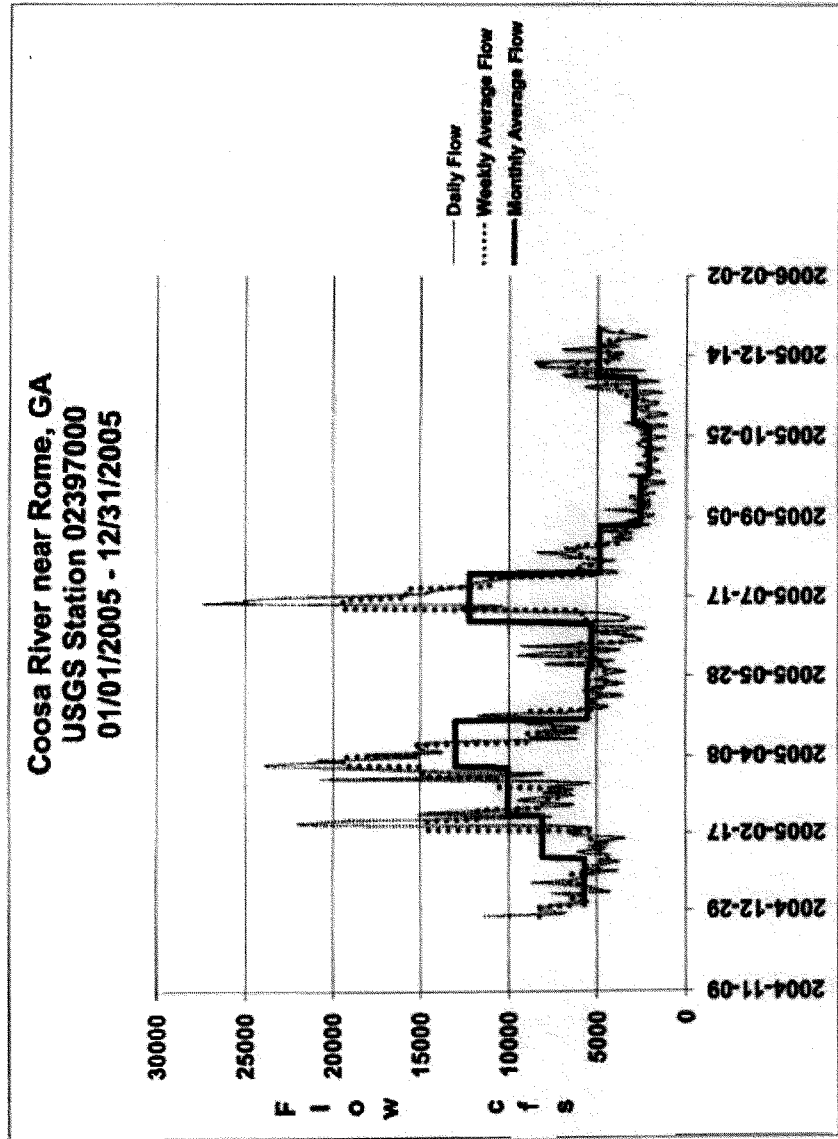


Onis "Trey" Glenn, III
Director

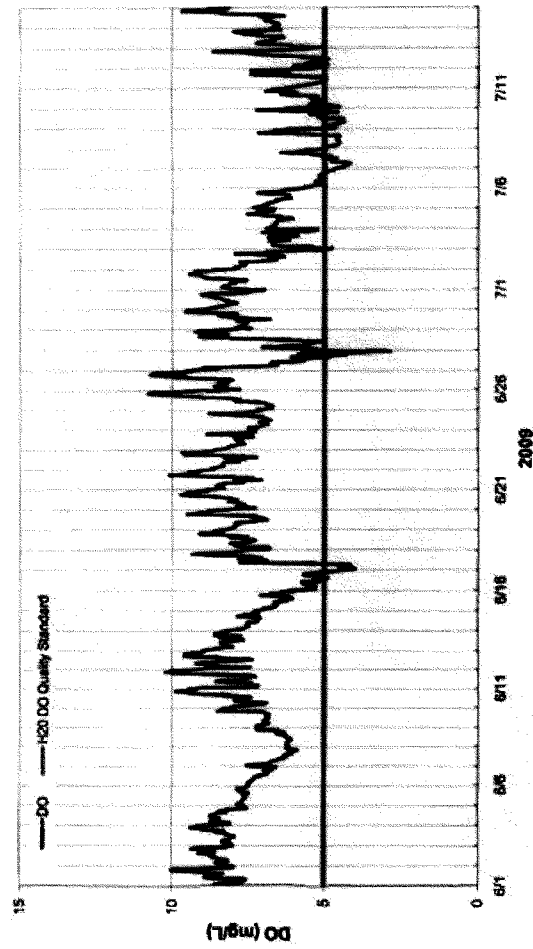
Attachments

cc: Stan Meiburg, US EPA Region 4

July 12, 2013



July 12, 2013

MeadWestvaco - Mahrt Mill River Intake DO

Senator SESSIONS. Thank you very much.
Mr. Turner?

STATEMENT OF JUDSON H. TURNER, DIRECTOR, ENVIRONMENTAL PROTECTION DIVISION, GEORGIA DEPARTMENT OF NATURAL RESOURCES

Mr. TURNER. Good afternoon, Senator Sessions and members of the Committee. My name is Jud Turner and I am the Director of the Environmental Protection Division of the Georgia Department of Natural Resources.

Georgia EPD is the State agency responsible for managing the State's surface waters and groundwater.

I appreciate the opportunity to share Georgia's perspectives on the Corps of Engineers' management of the Federal reservoirs in the ACF and ACT basins. I have submitted written testimony that I ask to be submitted for the record. I will not read that testimony in full but make a few broad points from it.

Senator SESSIONS. We will make it a part of the record.

Mr. TURNER. Thank you, sir.

There are two principal reasons I believe we are at this juncture with respect to the interstate river basins at issue. First, for much of the last 23 years, Senator Sessions, you referenced this, the Corps has been involved and often thwarted in finalizing new water control manuals for the ACF and ACT basins as required by law.

Second, recent multi-year droughts that were longer and more severe than any we have seen before have increased the scrutiny and concern of stakeholders in all three States. Had the Corps been able to update the water control manuals before now, it might have better managed the reservoirs to the benefit of all users, upstream and down.

We might also have answers to some of the questions that Alabama and Florida have raised in their testimony today. Instead, often paralyzed by litigation and political pressure, and unaided by environmental and economic studies that would have accompanied properly developed plans, the Corps has operated on an ad hoc and trial and error basis.

Each State has had its complaints regarding the Corps' operation of these reservoirs. This paralysis has blocked the development of complete, up to date plans, and has not served any State well. Whether one is talking about the ACT or the ACF basins, the perception among stakeholders in downstream States, as evidenced by testimony today submitted by representatives from Florida and Alabama, the belief is the Corps and water users in Georgia are responsible when stream flows fall.

The Corps, as this narrative goes, should release more water and all the problems would be solved. While I can empathize that people are hurt by drought, we too feel this pain in Georgia, the facts simply do not support that Georgia or the Corps are to blame for these effects.

Per capita water consumption in the metropolitan Atlanta area is less than per capita water use in Montgomery, in Mobile, in Birmingham and in Tallahassee. The metropolitan Atlanta's total consumption of water from Lake Lanier and the Chattahoochee River

in 2011 was a net 171 cfs. That is less than 1 percent of the average flow in the Apalachicola River at the State line in a normal year and less than 2 percent of that flow in a drought year.

In the ACT Basin, the metro Atlanta water consumption is around 1.2 of the average flow at the Coosa River at the State line and around one-half of 1 percent if you measured the flow at the Alabama River.

The facts are that metro Atlanta's use has almost no effect at all on the flow into Alabama and Florida.

The downstream perceptions about the effects of the Corps operations are similarly misplaced. Take the stream flow in the Apalachicola River. That is an instance where the Corps operations have helped, not hurt, Florida. During the last two drought cycles, natural inflow into the ACF Basin has fallen to approximately 50 percent of normal levels. The Corps provided a great deal of augmentation from storage to mitigate the effect, but it can only do so much.

Had the Corps drained all the conservation storage in the ACF Basin over the course of the drought to provide the maximum possible flow augmentation, it would have only replaced 4 percent of the natural 50 percent drop in the natural basin inflow.

The Corps has operated the Federal reservoirs in Georgia to a State line flow target at Jim Woodruff Dam that was much above the amount of water entering the basin. For recent drought years in particular, take 2006, 2007, 2011 and 2012, the augmentation numbers are staggering.

From 2006 through 2007, the Corps used 850,000 acre feet of storage drawn down to meet the State line flow requirement at Woodruff. That target was often 5,000 cfs when natural inflow was 3,000 cfs or lower for extended periods of time. Often, this is 2,000 cfs of augmentation coming out of these Federal reservoirs hour after hour, day after day during the droughts. In 2011, the Corps drew approximately 700,000 acre feet from storage and in 2012, 570,000 acre feet. When it comes to the effects of drought, these reservoirs unequivocally help, not hurt.

There are similar misconceptions about the ACT. Unlike the Federal reservoirs in the ACF, those in the ACT Basin, Allatoona and Carters, encompass only a small portion, 17 percent, of the total basin storage. The rest is in reservoirs in Alabama. Similar to Lanier, however, draining the reservoirs in Georgia will not solve the problems of drought.

The 2006 and 2008 is instructive, State line flow from Georgia supported heavily by augmentation releases by Allatoona made up 80 to 90 percent of the flow target at Montgomery. Yet, as I noted, those reservoirs were only 17 percent of the storage.

In reality, the downstream states and those downstream communities within Georgia, for that matter, have greatly benefited from the existence of these Federal reservoirs and the Corps' operation of them.

We find ourselves in this dialog because Florida and Alabama naturally, in times of drought, would like more water. As I have mentioned, the Corps cannot eliminate all the effects of drought; it can, however, improve its operations to more optimally meet the needs of all stakeholders.

Federal law provides the proper mechanism for the Corps to take up this balancing act and prepare that environmental impact statement that takes into account current and future operations and demands and to look at environmental, economic and socioeconomic effects of operating different scenarios and then use those studies to develop the plan.

Once the water control manuals have been finalized with the attendant EIS work and NEPA analysis, you will have significant data and significant stakeholder impact. At that time, any aggrieved State can pursue whatever remedies it may have at law. There is no need for Congress to add to the regulatory framework or work to block what the courts have ruled to be legally required and badly needed.

Whether you are a citizen of Alabama, Florida or Georgia, the best route to a long term, balanced solution is for the process and legal frameworks to be followed as the court has required by law.

Thank you.

[The prepared statement of Mr. Turner follows:]

Statement of Judson H. Turner
U.S. Senate Committee on Environment and Public Works
 July 22, 2013

My name is Judson H. Turner. I am Director of the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources. Georgia EPD is the state agency that is responsible for managing the State's surface waters and groundwater.

I appreciate this opportunity to appear before you to talk about Georgia's perspectives on the U.S. Army Corps of Engineers' management of federal reservoirs in the ACF and ACT River Basins. Georgia is proud of its water conservation and management record, and it has a long history of working with the Corps to see that the waters in the State of Georgia are soundly managed for the benefit of all users in the basins and for the environment.

Georgia is gratified that the Corps finally is updating its Water Control Manuals for the ACF and ACT Basin reservoirs. After more than twenty years of gridlock and delay caused by litigation, that process is long overdue and much needed—indeed, the last formally regulated plans are several decades old and do not reflect current conditions. Unfortunately, for reasons that are not apparent to the State of Georgia, the scope of these updates differs, and it now appears that the most pressing water supply issues, at least in the ACT Basin, might not be addressed. In the ACF Basin, the Corps is considering, in conjunction with the water control manual update, Georgia's request for an allocation of storage to meet present and future water supply needs from Lake Lanier. In the ACT Basin, however, the Corps has announced that the water control manual update will not address Georgia's pending request for a reallocation of storage in Lake Allatoona to meet water supply needs. Proceeding in that manner will make the new ACT water control manual obsolete on the day it is issued.

The Corps should be allowed the opportunity to complete the studies and plans that it is tasked by law with preparing and that are essential to the Corps' making informed decisions about how to operate the federal reservoirs in the ACF and ACT Basins. Those studies should provide badly-needed information to all stakeholders and decisionmakers. Action by Congress is not needed at this time and could interfere with the work the Corps needs to do.

Georgia and Metropolitan Atlanta's Sound Water Stewardship

The State of Georgia and the Metropolitan Atlanta Region are national leaders in water stewardship. In 2008, Georgia was one of the first states to adopt a statewide water plan, and pursuant to that planning process, eleven Regional Water Councils have recommended, and the State has approved, Regional Water Plans. In 2010, the Georgia General Assembly passed the Georgia Water Stewardship Act. Among the Act's provisions are that it requires state government agencies to examine their programs, practices, and rules to identify opportunities to provide for voluntary water conservation; requires local governments to include water conservation measures in local comprehensive plans; provides incentives for public water systems to use full cost accounting; and provides technical assistance to local governments and public water systems for water loss abatement activities.

Since 2003, the Metropolitan North Georgia Water Planning District (Metro Water District) has imposed comprehensive long-term plans for water supply and conservation, wastewater management, and watershed management for Metro Atlanta. The Metro Water District is comprised of 15 counties, 92 cities, and 56 water supply systems. The plans are implemented by local water systems and local governments and are enforced by the State of Georgia through water permits and through eligibility for grants and loans.

Water conservation is an important element of the Metro Water District's Water Supply and Water Conservation Plan. The water conservation measures in the Plan are the most aggressive in Georgia and among the most aggressive in the United States. The water conservation measures in the Metro Water District Plan include: 1) conservation pricing; 2) replace older, inefficient plumbing fixtures; 3) pre-rinse spray valve retrofit education; 4) rain sensor shut-offs on new irrigation systems; 5) sub-unit meters in new multi-family buildings; 6) assess water losses with IWA/AWWA water audit methodology and develop programs to reduce systems water loss; 7) residential water audits; 8) low-flow retrofit kits for residential; 9) commercial water audits; 10) education and public awareness activities; 11) high-efficiency toilets and urinals in government buildings; 12) new car washes to recycle water; 13) expedited water loss reduction; 14) multi-family HET rebates; 15) meters with point of use leak detection; 16) private fire lines to be metered; 17) maintain a water conservation program; 18) water waste policy or ordinance; and 19) HET plumbing fixtures in new construction consistent with state legislation.

The Metro Water District has made water conservation a priority, and local water systems have shown a strong record of implementation of water conservation measures. In annual progress surveys, the District has found: that tiered water conservation rates are in place throughout Metro Atlanta; that water systems serving 96% of the population offer toilet rebates, and, to date, over 83,000 older toilets have been replaced since 2008; that the larger systems have implemented programs to reduce system water losses, and, from 2010 through 2012, over 37,000 leaks were repaired; and 98% of the population of the Metro Atlanta area is targeted with educational and outreach programs by local governments.

In 2012, EPD conducted an evaluation of the 2000-2010 rates of growth in water demand compared to rates of population growth in the counties with the 15 largest municipal surface water systems in Georgia. Six of the 15 largest municipal surface water systems are located in five counties (i.e., Fulton, DeKalb, Cobb, Gwinnett, and Hall) that rely upon withdrawals or water supply releases from Lake Lanier. The evaluation showed that water use in each of the five counties demonstrated a consistent decreasing trend over the decade, while population in each of those counties increased over the decade. Trends such as these in the five counties and beyond clearly indicate that the water conservation initiatives being implemented in the Atlanta region by the Metro Water District are significantly reducing per capita water demand.

Due in part to the water conservation measures put into place, the per capita water use rate in the Metropolitan Atlanta Region has fallen in recent years. Data from the Metro District 2009 plan indicates that the estimated use rate for the Atlanta Region is currently 148 gallons per capita per day (gpcd), and is expected to decline to 135 gpcd by the 2035-2040 timeframe. According to a report by the firm CH2MHill based on information provided by state agencies, in 2006, the per capita use rate for Atlanta was even lower than this projection, at 128 gpcd. Rates for major cities in Alabama and Florida were higher: for Tampa, Florida, the use rate was 148 gpcd; for Mobile, Alabama, was

159 gpcd; for Montgomery, Alabama, was 162 gpcd; for Birmingham, Alabama, was 167 gpcd; and for Tallahassee, Florida, was 176 gpcd.

According to the September 2012 Water Efficiency and Conservation State Scorecard by the Alliance for Water Efficiency and the Environmental Law Institute, only five states (four of which are west of the Mississippi River) received a better grade than did Georgia for their laws and policies promoting water efficiency and conservation. Alabama and Florida received lower grades than Georgia.

In January 2011, Governor Nathan Deal ordered the Georgia Environmental Finance Authority (GEFA) to develop and implement the Governor's Water Supply Program (GWSP) to assist local governments in developing new sources of water supply, and to identify innovative approaches to addressing some of Georgia's major regional water challenges. This \$300 million state-funded effort will strategically fund several water resources projects that will help "grow the cistern" so that more water is available – during dry times – to meet a host of water needs over time.

ACF Basin

The Chattahoochee, Flint, and Apalachicola Rivers combine to form the ACF Basin. The Chattahoochee River begins near Helen, Georgia, flows through Lake Lanier and to Atlanta, through West Point Lake to Columbus, Lake Walter F. George, and then Lake Seminole which releases to the Apalachicola River in Florida and ultimately Apalachicola Bay and the Gulf of Mexico. The Supreme Court of the United States has confirmed that the entirety of the Chattahoochee River is in the State of Georgia, as the boundary between Georgia and Alabama is the high-water mark on the western bank of the River. Georgia therefore retains regulatory authority over water supply withdrawals and wastewater discharges into waters lying within the State. The Flint River begins near the Atlanta airport, flows southwest to Albany and Bainbridge, and to Lake Seminole. The ACF Basin is nearly 20,000 square miles. Approximately 74% of the drainage area of the ACF Basin is in Georgia (15% is in Alabama, and 11% is in Florida), and approximately 72% of the Basin's population resides in Georgia.

The average flow in the Chattahoochee River as it passes through Atlanta is approximately 2,500 cubic feet per second (cfs) (or 1,621 mgd). The average flow in the Apalachicola River as it enters Florida is 21,587 cfs, or nearly nine times the Chattahoochee flow in Atlanta.

More than 3.3 million Georgians rely upon withdrawals of water directly from Lake Lanier or withdrawals of water that the Corps releases from Lake Lanier to the Chattahoochee River to meet their water supply needs. EPD projects that the number of Georgians who depend upon withdrawals and releases from Lake Lanier for water supply will rise to more than 6 million by around 2040. Counties that rely on Lake Lanier for water supply comprise the majority of the population for the Atlanta Metropolitan Statistical Area, which, according to the U.S. Census Bureau, is the ninth largest MSA by population in the United States. From 2000 to 2010, the Atlanta MSA grew by 24%, a growth rate exceeded by only two other MSA's in the United States.

Although Metropolitan Atlanta draws heavily on the Chattahoochee River for water supply, its total consumption is relatively small. Well over half of the water used is returned to the river

downstream of Atlanta. As a result, in 2011, for example, the net use (consumption) of water from Lake Lanier and the Chattahoochee River for the Atlanta area was 110 mgd, or 171 cfs. This equates to less than 1% of the water flowing from Georgia into the Apalachicola River in an average year. During extreme drought, the percentage depletion of the annual water budget is somewhat higher, but it is never much higher than 2-3%. To put this in further context, the stage of the Apalachicola River can fluctuate as much as 2 feet each day as a result of hydropower operations. The depletion attributable to all of Metropolitan Atlanta, representing 72% of the population of the entire ACF River Basin, reduces the stage of the Apalachicola River by less than 2 inches.

The ACF Basin also is home to one of the most productive agricultural regions in the United States. The major crops grown and harvested in southwest Georgia include peanuts, cotton, and pecans. Georgia is by far the largest peanut producing state in the U.S, often producing more than two billion pounds annually. In recent years, only Texas has exceeded Georgia in producing cotton. In 2012 the U.S. produced more than 80% of the world's pecans, and Georgia produced a full one-third of the U.S. total of 302 million pounds. Much of Georgia's peanut, cotton, and pecan production is concentrated in the ACF Basin and is aided by irrigation.

Lake Lanier

Lake Lanier is a multi-purpose project that Congress authorized in the River and Harbor Act of 1946 (1946 RHA) for the purposes of water supply, hydropower, navigation, and flood control. Recreation also is an authorized purpose. Lake Lanier is a large reservoir, but it is located near the headwaters of the Chattahoochee River and is fed by a small drainage area. Less than 6% of the drainage area of the ACF Basin is above Lake Lanier. This means that when the elevation of Lake Lanier drops more than a few feet, it can take a long time, sometimes several years, for it to refill. This important fact must be kept in mind when considering the capacity of Lake Lanier to augment flows hundreds of miles downstream in the Apalachicola River during droughts. The 1946 RHA approved plans that the Corps of Engineers presented to Congress. The Corps predicted Metro Atlanta's growth and recommended that releases from the reservoir to augment the flow in Atlanta be increased over time to meet the growth in water supply needs. In the 1958 Water Supply Act, Congress provided supplemental authority, in addition to that provided in the original authorizing legislation, for water supply.

A number of studies dating back to the 1960s have concluded consistently that Lake Lanier and the Chattahoochee River provide the most economical and environmentally-protective alternative for meeting the water supply needs of the region. In 1972, the U.S. Senate Public Works Committee authorized an interagency study to develop a framework for the orderly development of water resources for the Metropolitan Atlanta area to beyond the year 2000. This study, The Water Management Study Report, released in 1981, identified three alternatives for further study, one of which was to reallocate storage in Lake Lanier from hydropower to water supply. After completing its environmental investigation in accordance with the National Environmental Policy Act, the Corps concluded that the best option for the environment and economy was to allocate storage for water supply in Lake Lanier.

Georgia's Lake Lanier Water Supply Request

Georgia EPD projects that municipal and industrial water supply demands that are dependent upon withdrawals and special releases from Lake Lanier will reach 705 mgd (including 297 mgd lake withdrawals and 408 mgd river withdrawals) sometime between 2035 and 2045. It is reasonable to plan using the assumption that Georgia's water supply needs will be at least 705 mgd by 2040.

A large portion of the Metro Atlanta area's treated wastewater is returned to the Chattahoochee River downstream of Buford Dam. EPD projects that by 2040 (or as of the date when water withdrawals reach 705 mgd), the amount of treated wastewater discharged to the Chattahoochee River for the Atlanta area will be 385 mgd on an annual basis. When combined with return flow directly into Lake Lanier, the total return of wastewater associated with the withdrawal of 705 mgd is projected to be 550 mgd, or 78% of the total withdrawal. Therefore, Georgia projects that as of 2040, the total consumptive use from municipal and industrial water supply from Lake Lanier and from the Chattahoochee River above the Whitesburg gage will be approximately 155 mgd, or 239 cfs, on an annual average basis. To put this amount into perspective, it is a mere 1.1% of the 21,587 cfs annual average daily flow of the Apalachicola River just downstream of the Georgia-Florida state line.

In May 2000, Georgia's Governor submitted a formal request to the Assistant Secretary of the Army asking that the Corps allocate storage in Lake Lanier sufficient to meet projected needs of up to 705 mgd for the Metro Atlanta region. That request remains pending. It was delayed for more than a decade by litigation over whether the Corps had the authority to grant the request. The Eleventh Circuit Court of Appeals in 2011 held that water supply for the Metropolitan Atlanta Region was an originally-authorized purpose of Lake Lanier, and that, to the extent it may be needed, the Water Supply Act of 1958 would provide additional authority for water supply. The Court of Appeals remanded the case to the Corps for it to make a determination whether its statutory authority, as clarified by the court, was sufficient to grant Georgia's May 2000 request. The Corps has completed that extensive analysis and determined that it indeed has adequate authority to meet Georgia's water supply request. The Corps is now undertaking an Environmental Impact Statement as required by the National Environmental Policy Act to assess the effects of granting Georgia's water supply request as compared with alternatives.

The projected water withdrawals and Corps operations necessary to support them will not have a material impact on the production of hydropower at Buford Dam or the federal reservoirs in the ACF Basin as a whole, and any impact will be gradual over the next several decades. EPD's modeling indicates that, if viewed in terms of hydropower generation for the federal reservoirs in the ACF Basin as a whole, when Georgia has reached demands of 705 mgd and year 2040 water supply needs are met throughout the rest of Georgia, average annual power generation will be 970,900 MWh, as compared with the 988,055 MWh of (simulated) annual average generation with 2011 water supply levels. Thus, EPD projects a mere 1.7% decrease in hydropower generation basin-wide. Georgia's conclusions are consistent with those reached by the Corps in its assessment of the impact to hydropower from granting Georgia's water supply request as compared with a baseline that assumed virtually no water supply operations at all. Using that baseline of comparison, the Corps concluded that the water supply operations and lake withdrawals would result in less than a 1% reduction to ACF Basin dependable hydropower capacity, and that the lake withdrawals and water supply releases contemplated by Georgia's

water supply request would result in reductions in basinwide hydropower value of 4.4% and less than 1%, respectively.

As the ACF Basin reservoirs, for reasons unrelated to Georgia's water supply usage, are no longer used to support commercial navigation except under rare circumstances, Georgia's water supply request will not impact navigation. The current request to reallocate the conservation storage to meet Georgia's projected future water supply needs does not involve changing the elevation of the top of conservation pool or the size of the flood control pool. Thus, reallocating part of the conservation storage to accommodate Georgia's water supply needs will have no impact on the flood control capability of Lake Lanier or the ACF system. Although changes to the size of the flood control pool are not necessary for the Corps to grant Georgia's request, Georgia may still recommend raising the conservation pool, at the appropriate time, if and when it determines that the benefits of doing so exceed any costs. Granting Georgia's request also will have a relatively small impact to recreation.

Threatened and Endangered Species in Apalachicola River and Bay

The United States Fish and Wildlife Service has designated portions of the Apalachicola River and its tributaries as critical habitat for the threatened Gulf sturgeon, the endangered fat threeridge mussel, the threatened purple bankclimber mussel, and the threatened chipola slabshell mussel. The Gulf sturgeon spawns in the Apalachicola River. The fat threeridge, purple bankclimber, and chipola slabshell mussels live at locations within the Apalachicola River and its tributaries. Recent studies show these species to be stable or recovering within the Apalachicola River and its tributaries. In particular, studies conducted by the Fish and Wildlife Service show the population of the fat threeridge in the Apalachicola River and its tributaries to be much greater than previously believed. In a May 2012 Biological Opinion, the Fish and Wildlife Service reported that its "surveys demonstrated that the fat threeridge was more abundant than we previously believed, and recent recruitment was documented at many locations." The Gulf sturgeon has seen significant recovery since the closing of the Florida fishery in the 1980s.

Revised Interim Operating Plan

The Corps developed the Revised Interim Operations Plan for Jim Woodruff Dam (RIOP) to help protect threatened and endangered species in the Apalachicola River and Bay. The RIOP produces higher flows in the Apalachicola River than would otherwise be provided by nature in times of drought. Although it is not a water control plan for the entire ACF River Basin, the RIOP ultimately affects the elevations of the federal reservoirs up and down the basin.

The Corps began operating under the original form of the RIOP in 2006. The drought of 2007 highlighted the flaws in the original IOP, which had a devastating effect on reservoir storage levels throughout the ACF River Basin. By December 26, 2007, the change in operations mandated by the original IOP resulted in a loss of roughly 850,000 acre-feet of storage throughout the ACF system and reduced Lake Lanier to its lowest level in history. By November 2007, only 33% of all conservation storage within the ACF system remained.

The Corps has revised the original RIOP a number of times to prevent a repeat of 2007 and in response to new information regarding the species in the Apalachicola River. Despite these changes, however, Georgia remains unconvinced that the current flow provisions are necessary and supported

by sound science. As an example, there is no evidence to support a conclusion that a flow of 11,000 cfs from March to May is necessary to support a successful spawn of the Gulf sturgeon.

Although Georgia recognizes the Corps' obligation under the Endangered Species Act to operate in a way so as not to jeopardize threatened and endangered species, the RIOP is not Georgia's preferred plan and could be improved in several respects. Opportunities to store water in the federal reservoirs in the ACF Basin are very limited under the RIOP. The minimum flow requirements prevent virtually any storage of water during the late spring, the summer, or the fall in drought years. Moreover, the RIOP requires the Corps to draw from storage, sometimes for extended periods and in amounts that cause major draw-down of the ACF Basin reservoirs, to maintain a flow of at least 5,000 cfs in the Apalachicola River at all times. There is some question as to the need to maintain such a high minimum flow during periods of extreme drought.

The RIOP has been the subject of a number of legal challenges, particularly by the State of Florida. Florida first challenged the original IOP in 2006 and updated its complaint a number of times to challenge subsequent revisions to the RIOP. Florida's claims were rejected in 2010 and Florida later withdrew its appeal of the district court's opinion as a result of further modifications to the RIOP.

ACF Water Control Manual Update

The last formally-adopted Water Control Manual for the ACF River Basin is out of date and must be revised and updated to reflect current conditions in the Basin. The current Master Water Control Manual for the ACF River Basin was completed in 1958 and does not include Water Control Manuals for the West Point, Walter F. George, or George W. Andrews projects. Manuals were developed for individual projects in the ACF River Basin as they came on line or as operations changed to accommodate changing conditions within the system. The existing Water Control Manuals do not address water supply operations.

The Corps first attempted to update the ACF Water Control Manual in 1989 with the issuance of a "draft" Water Control Plan that was never formally adopted. Litigation filed by Alabama in 1990 blocked the Corps' adoption of the 1989 Draft Water Control Manual and prevented the Corps from being able to complete the update process. In arguments to the Eleventh Circuit Court of Appeals, the Corps stated that "every single day since 1990 the Corps was either operating under an agreement that barred it from formally taking any steps to reallocate storage, or was actively engaged in a process that could have led to a final agency action reallocating storage." The historical sequence of events supports this claim.

The Corps continued to operate under the 1989 Draft Water Control Manual without an update to the Manual through 2003, apparently on the belief that an agreement between the states would eventually be reached and that a revised water control plan could then be prepared to implement that agreement. The Corps attempted on multiple occasions after 2003 to begin the process of making final decisions on water allocations, but it was consistently thwarted by the litigation process. The statements by the Corps in 2005 that it intended to move forward with updating the water control manuals, a settlement agreement in litigation in the D.C. Circuit, which was struck down in 2008, and a Corps memorandum issued in 2009, demonstrate that the Corps intended to move forward in consummating a decision-making process after 2003 but could not.

The Corps published a Federal Register Notice of Intent (NOI) on October 12, 2012 to reopen public scoping to account for the Eleventh Circuit's June 28, 2011 Decision, which concluded that water supply is an authorized purpose for Lake Lanier. As part of the current process for updating the ACF Water Control Manual, the Corps has correctly decided to study as an action alternative allowing withdrawals from Lake Lanier and making releases from Lake Lanier to meet the projected water supply demands included in the Georgia Water Supply Request. The Corps must decide how it will accommodate Georgia's future water supply demands, and it only makes sense to coordinate the decision on Georgia's water supply request with the Water Control Manual update so that the Water Control Manual reflects that decision. All alternatives considered by the Corps for operations in the ACF Basin should be evaluated against the criterion of whether and how they accomplish the purpose of meeting Georgia's projected water needs.

Any alternatives that do not involve releases to support up to 408 mgd of withdrawal from the Chattahoochee River above the Peachtree Creek confluence and 297 mgd withdrawal from Lake Lanier by 2040 must account for the economic, environmental, and sociological effects of other water projects that the State or local water systems will have to develop to meet the shortfall. The substantially higher cost and environmental impact of projects to replace Lake Lanier likely render some or all of those alternatives unfeasible.

The State of Georgia continues to believe that the Corps should consider, as part of the update process for the Water Control Manual, alternatives to the RIOP. Although the Corps has modified the RIOP to be more protective of both system storage and protected species, recent science demonstrates that the flow requirements and thresholds used in the RIOP are based on overestimations of the biological needs of those species at the expense of needs upstream. This has resulted, in part, from the use of indirect or surrogate measures based on limited scientific information on biological needs. Direct measures based on recent science can and should be utilized. Doing so will provide the basis for alternatives to the RIOP that offer equal or even better results for the protected species, while producing higher reservoir levels.

The State of Georgia requests that the Corps at least carefully reexamine the RIOP using better-refined performance measures. Georgia suggests that the Corps apply the following principles in evaluating the RIOP and alternatives:

- Develop objective, direct, measurable, quantifiable, and scientifically-defensible performance measures;
- Consider performance measures in the entire ACF Basin as a whole, instead of just those in the Apalachicola River, when evaluating alternatives;
- Use these performance measures to compare and evaluate all alternatives in a consistent manner;
- Favor alternatives that demonstrate improved performance related to multiple purposes or interests while also achieving performance measures with the greatest efficiency of individual project and system reservoir storage; and
- Restrain from drawing conclusions or formulating operations based on incomplete data or insufficient scientific understandings.

Using performance measures that were developed using Corps and Fish and Wildlife Service data, the State of Georgia has developed and shared with the Service an alternative to the RIOP. Georgia's proposal aims to out-perform the RIOP with regard to performance measures for protected species while conserving system storage to meet water supply and other authorized reservoir purposes.

ACT Basin

The Etowah River rises in north Georgia, flows through Dawson, Forsyth, and Cherokee Counties, through Lake Allatoona, towards Rome, where it joins the Oostanaula River to form the Coosa River, and into Alabama. Inside Alabama, the Coosa River is impounded by a series of Alabama Power lakes, as is the Tallapoosa, which also begins in Georgia and joins the Coosa at Montgomery to form the Alabama River. The Alabama River flows south through Alabama to Mobile Bay. The ACT Basin covers nearly 23,000 square miles, 23% of which is in Georgia, about 76% of which is in Alabama, and the small remainder of which in Tennessee. As is the case in the ACF Basin, the ACT Basin rivers are very small in the Atlanta area and become much larger downstream. The average flow in the Etowah River at the Allatoona Dam Site is 1,947 cfs (1,250 mgd). The average flow in the Coosa River near Rome is 6,810 cfs (4,400 mgd). The average flow in the Coosa River at Jordan Dam (just upstream of Montgomery, before the Coosa River joins the Tallapoosa to form the Alabama River) is 16,420 cfs (10,600 mgd).

Lake Allatoona

Lake Allatoona, like Lake Lanier, sits in north Georgia, near the top of the basin. Only approximately 4% of the basin lies above and drains into Lake Allatoona. Unlike Lake Lanier, Lake Allatoona does not provide a large portion of the storage within its basin. Lake Allatoona provides only 11.4% of the ACT Basin's total storage, and Carters Lake provides an additional 5.7%. Thus, more than 82% of the storage capacity in the ACT Basin is in Alabama, in nine Alabama Power projects and two Corps projects. All of that storage, and much larger drainage area and stream flow, helps Alabama mitigate the effects of drought. Nevertheless, during droughts, the Corps has provided a hugely disproportionate percentage of the flow in the Alabama River from water stored in Lake Allatoona and Carters Lake. During the drought of 2007, for example, for prolonged periods, the overwhelming majority of the flow in the Coosa River and the Alabama River downstream of Jordan Dam was provided by inflow from Georgia.

Georgia's Lake Allatoona Water Supply Request

More than 915,000 Georgians currently rely upon withdrawals of water from Lake Allatoona to meet their water supply needs. Two municipal water systems withdraw water from Lake Allatoona: Cobb County-Marietta Water Authority (CCMWA) and the City of Cartersville. CCMWA provides water within Cobb, Cherokee, Douglas, Fulton, and Paulding Counties. Cartersville provides most of the water within Bartow County. The rates of population growth of Bartow, Cherokee, Cobb, Douglas, and Paulding counties from 1990 to 2010 all exceeded the rate of growth of the population of the State of Georgia as a whole for the same period. The projected rates of population growth of these counties from 2010 through 2040 is also expected to be greater than the projected rate of population growth of the State of Georgia as a whole. Counties that rely on water withdrawals from Lake Allatoona comprise a portion of the population for the Atlanta MSA, which, as discussed above, is the ninth-largest MSA in the United States.

As with Lake Lanier, requests for reallocation of additional storage to water supply from Lake Allatoona have been pending for years. Requests from CCMWA and Cartersville date back to as far as the 1980s. In January 2013, Governor Nathan Deal submitted to the Assistant Secretary of the Army for Civil Works a formal request that the Corps manage the resources of Lake Allatoona to meet the projected water supply needs for water stored in Lake Allatoona. Governor Deal requested that the Corps: (1) allow gross municipal and industrial water withdrawals from Lake Allatoona to increase to between 123.9 and 147.9 mgd annual average to meet 2040 demands; (2) allow CCMWA to withdraw from its existing intake in Lake Allatoona water that is released from the Hickory Log Creek Reservoir specifically for CCMWA, without requiring CCMWA to acquire additional storage space for such withdrawals; (3) in determining the amount of water that may be withdrawn without exhausting the storage that a water supply user has purchased, credit to that user exclusively all returns of treated wastewater that the Georgia EPD has permitted and allocated to that user for withdrawal, as doing so will not adversely affect any other project purpose or clash with any federal objective and will incentivize the substantial local investment required to make these returns, which enable water reuse and increased efficiency; and (4) enter into contracts that document the parties' understanding as to how the Corps will operate in support of Georgia's water supply needs.

The projected water withdrawals and Corps operations necessary to support them will have only a small impact on hydropower production at Lake Allatoona, and an even smaller impact on the combined hydropower production at the two federal reservoirs in the ACT River Basin. The impact is even smaller when one looks at the entire Alabama-Georgia-South Carolina system of reservoirs of which Lake Allatoona is a part. The annual production of power at Lake Allatoona in 2011 was 86,308 MWh. By comparison, the other federal hydropower project within the ACT Basin, Carters Lake, has 575 MW of installed capacity and generated 536,199 MWh in 2011. Lake Allatoona is a relatively small source of energy. To give some perspective on the relative quantity of power generated at Lake Allatoona, as a percentage of the total electricity consumed within the State of Georgia in 2010, 137.6 million MWh, Lake Allatoona's power production was only 0.063%. Assuming that the Corps allows the withdrawals from Lake Allatoona that Georgia is requesting, the power generated by the two federal ACT Basin reservoirs combined will decrease by only 1.5%.

On the Etowah River downstream of Lake Allatoona, there are several municipal and industrial facilities that rely on flow in the Etowah River for their water supply needs. According to EPD's analysis, the withdrawals from Lake Allatoona that are contemplated in Georgia's water supply request will not prevent or impair the supply of water for these downstream needs. The current request to reallocate the conservation storage to meet Georgia's projected future water supply needs does not involve changing the elevation of the top of conservation pool. As a result, the size of the flood control pool does not change. Thus, reallocating part of the conservation storage to accommodate Georgia's increased water supply should have no negative effect on flood control capability of Allatoona or the ACT system. Although changes to the size of the flood control pool are not necessary for the Corps to grant Georgia's request, Georgia may still recommend changes to the conservation pool, at the appropriate time, if and when it determines that the benefits of doing so exceed any costs. Meeting Georgia's water supply needs also will not seriously affect recreation.

The water supply withdrawals contemplated in Georgia's water supply request will have only a minor effect on the flow in the Coosa River at the state line. Further, the impact on total stream flows into Lake Weiss at the state line is even more attenuated. The effect of such withdrawals, when they

reach their maximum amount, at most will be around 120 cfs, which is less than 2% of the annual average daily flow in the Coosa River near the Georgia-Alabama state line.

ACT Water Control Manual Update

The Corps is in the process of updating its Water Control Manual for the ACT Basin. It has issued a draft Manual and draft Environmental Impact Statement. There are some positive changes proposed in the draft Manual, including some new drought provisions, but there is a major flaw in that it does not address current and future levels of water withdrawal from Lake Allatoona. In the EIS, the Corps fails to consider increased water supply withdrawals from Lake Allatoona as an action alternative. The Corps suggests that it has chosen this approach because Georgia's Allatoona water supply request is under consideration and apparently will be addressed in a separate decision, ostensibly with another EIS. Georgia has pointed out that its future water supply need is reasonably foreseeable, and, therefore, must be considered in the EIS. Further, because the Corps is authorized by the Water Supply Act of 1958 to allocate additional storage in Lake Allatoona to water supply, water supply is a fully authorized purpose of Lake Allatoona. Without considering future levels of supply, the EIS has not rigorously explored and objectively evaluated all reasonable alternatives. It will not adequately address the cumulative effects of adopting the proposed Water Control Manual. And the Corps will not have incorporated the NEPA evaluation into its decision-making process at the earliest possible time, contrary to the NEPA regulations.

Water Resources Development Act of 2013

Sections 2014 and 2015 of the Water Resources Development Act of 2013 that the Senate passed earlier this year have the potential to affect the ACF and ACT Basins in ways that may be detrimental to the State of Georgia. These provisions may adversely affect many other states as well. As Georgia understands it, the legislation is not intended to limit the Corps' existing authority to reallocate storage to water supply, to interpret that authority, or to discourage the Corps from undertaking a reallocation. Georgia is concerned that the language is vague and, particularly in light of the specific reference to the ACT and ACF Basins, could be misinterpreted. Therefore, Georgia would prefer that those sections be eliminated from any version of the bill that becomes law, or that the language be revised to ensure that it is fully consistent with Chairman Vitter's and Chairwoman Boxer's statements on the floor relating to this provision.

Conclusion

For more than two decades, the Corps has been operating the reservoirs in the ACF and ACT Basins without current water control manuals and without a plan for how the storage in Lake Lanier and Lake Allatoona will be used to meet Georgia's water supply needs. The courts have now made rulings that have cleared away the litigation that was blocking the Corps from taking the actions that are needed and required by federal law, and the Corps finally is updating its plans and manuals. Among other things, the Corps is preparing Environmental Impact Statements to evaluate the effects of different alternatives on the environment and the economy. The Corps should be allowed the opportunity to make the administrative determinations that it needs to make, including with regard to water supply. Congress should not take any action that might interfere with that administrative process, as doing so will only return us to the period of gridlock

and uncertainty that has plagued the citizens of Alabama, Florida, and Georgia for nearly a quarter-century.

Senator SESSIONS. Thank you, Mr. Turner.
Mr. Munson from Florida.

**STATEMENT OF GREGORY M. MUNSON, DEPUTY SECRETARY,
WATER POLICY AND ECOSYSTEM RESTORATION, FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

Mr. MUNSON. Thank you, Chairman Sessions and members of the Committee. I am Greg Munson, Deputy Secretary of the Florida Department of Environmental Protection. I am responsible for water policy and ecosystem restoration, including the Apalachicola River and Bay for the State of Florida.

I have submitted testimony for the record and would ask that it be included. I will only hit the high points of that testimony here today.

Senator SESSIONS. It will be included and made a part of the record, without objection.

Mr. MUNSON. Thank you, sir. Thank you for convening this important hearing about water management for the ACF and ACT river systems.

My testimony is given to provide Florida's perspective on the effect of reduced freshwater inflows into the Apalachicola River and Bay and the injury to this important economic and environmental region in the State and the country.

The Apalachicola River's flood plain ecosystem is the largest in Florida and the Apalachicola Bay is one of the most productive estuarine systems in the northern hemisphere. Hundreds of thousands of acres at the cost of millions of dollars have been acquired by Federal, State, local and private entities to protect this unique environment.

Oysters and other local seafood are the lynchpin of the Apalachicola region's social and economic structure. Apalachicola Bay provides about 90 percent of Florida's oyster harvest and 10 percent of the national oyster harvest. It gives Florida the third largest shrimp harvest as well. The river is the life blood of this extraordinarily productive estuarine system and the productivity of the Bay is strongly influenced by the amount, timing and duration of the fresh water inflow from the Apalachicola River.

The amount of water flowing into the river, and ultimately to the Bay, is a function of Georgia's consumption on the Chattahoochee and Flint Rivers and the Corps reservoir operations on the Chattahoochee. Since the 1970's, Georgia consumption has grown substantially in both systems and the Corps implemented its "draft" Water Control Plan to prioritize municipal and industrial water supply operations elevating them above other uses in 1989.

As a consequence, Apalachicola River flows have been lower and low flows have occurred more frequently and for longer durations than at any time in recorded history. In 2012, Florida experienced widespread damage to its oyster resources resulting from this prolonged low flow condition.

Flows in 2012 were at their lowest since records were kept beginning in 1923 but this is not the year with the lowest rainfall. Oyster production estimates are the lowest in the past 20 years. In fact, the data suggests that many of the stocks are not sufficiently abundant to support commercial harvesting, devastating the liveli-

hoods of the men and women who make their living directly harvesting or processing oysters.

As a result, Governor Scott requested that the Secretary of the Department of Commerce declare a commercial fishery failure for Florida's oyster harvesting areas.

Under the Corps' operations of Buford Dam and Lake Lanier the Corps has entered numerous contracts with Georgia water suppliers to permit withdrawals for municipal and industrial uses. In 1989, the Corps began prioritizing operations to support this water supply demand which has increased dramatically.

Under the Corps' operating schedule, each new demand placed on the system upstream is absorbed, not from reservoir storage, but entirely from downstream river flows. In other words, every acre foot of water Georgia wants is taken directly from flows that would otherwise reach Alabama and Florida.

These practices have deprived downstream interests of basic river flow needs, despite the empirical evidence that such operations are devastating Apalachicola Bay and its oyster population. It is clear that the Apalachicola River needs more flow to help recover from the devastating oyster mortality in the Bay that occurred in 2012, as well as the previous massive die-offs of endangered mussels, decline in fisheries and drying of the floodplain forest that has occurred in recent years.

The Corps' plan to develop a master manual presents an opportunity to restructure its present priority system as reflected in the existing Draft Water Control Manual and assign greater weight to downstream needs. The Corps can no longer assume that all needs can be met without proactively insisting on upstream conservation.

At a minimum, the Corps should mandate that Georgia develop strict conservation measures as a condition to entertaining any further withdrawals from the ACF system.

Thank you for the chance to talk to you today about one of Florida's most precious resources, the Apalachicola River and Bay. If you are ever able to visit Apalachicola, Florida, we would always be happy to host you and give you the oysters that are still left in the Bay so you can understand how unique that environment is to Florida and Floridians.

I am happy to answer any questions. Thank you.

[The prepared statement of Mr. Munson follows:]

**Testimony of
Greg Munson,
Deputy Secretary of Florida Department of Environmental Protection
“Oversight of Army Corps of Engineers Water Management in the Apalachicola-
Chattahoochee-Flint River (ACF) and
the Alabama-Coosa-Tallapoosa (ACT) River Systems”
United States Senate Committee on Environment and Public Works
July 22, 2013**

Chairwoman Boxer, Senator Vitter, and Members of the Committee, I am Greg Munson, Deputy Secretary of the Florida Department of Environmental Protection. In this capacity, I am responsible for water policy and ecosystem restoration, including the Apalachicola River and Bay, and oversight of the Apalachicola Bay Aquatic Preserve, for the state of Florida.

Thank you for convening this important hearing about water management for the Apalachicola-Chattahoochee-Flint River (ACF) and Alabama-Coosa-Tallapoosa (ACT) River Systems. Today, I will provide testimony on the Apalachicola River and Bay and the injury to this important economic and environmental region in the state and the country.

INTRODUCTION AND SUMMARY

My testimony is given to provide Florida’s perspective on the effect of reduced freshwater inflows into the Apalachicola River and Bay systems in Florida. These fragile systems support a unique and historically vibrant culture reliant primarily on the health of its fisheries, particularly the Eastern oyster. The Apalachicola region and its economy are being damaged by ever increasing consumptive uses in Georgia, that were too readily incorporated into the U.S. Army Corps of Engineers previous water management decisions. We believe Georgia needs to reel in its relentless

consumption, and the Corps should ensure that Georgia engages in meaningful conservation when updating its master control manual for the ACF system.

BACKGROUND ON THE RESOURCE

By way of background, the ACF River Basin covers about 20,000 square miles, most of which is located in Georgia. The Chattahoochee and Flint Rivers, both of which originate in north Georgia, join at the Florida-Georgia line to form the Apalachicola River. The Apalachicola River begins below the Jim Woodruff Lock and Dam, at the confluence of the Chattahoochee and Flint Rivers, and flows unimpeded 106 miles into the Bay. The Apalachicola River's floodplain ecosystem is the largest in Florida and includes over 200 miles of off-channel floodplain, sloughs, and streams. Its nontidal floodplain forest exceeds 82,000 acres and is rated among the top 10 biodiversity "hot spots" in the United States. Hundreds of thousands of acres have been acquired by Federal, State, local, and private entities to protect this unique environment.

Apalachicola Bay is one of the most productive estuarine systems in the northern hemisphere and is an exceptionally important nursery area for the Gulf of Mexico. Because of its uniqueness, several designations have been granted signifying the importance of the system. In 1969, the Florida Governor and Cabinet designated 80,000 acres of sovereignty submerged lands as the Apalachicola Bay Aquatic Preserve, and designated the River as an Outstanding Florida Water in 1983. The Apalachicola Bay is also home to the Apalachicola National Estuarine Research Reserve, which is one of only 27 sites so designated by the National Oceanic and Atmospheric Administration (NOAA). It encompasses more than 193,000 acres of land and water and is the largest of all such reserves in the country. In 1984, the United Nations Education, Scientific, and Cultural

Organization (UNESCO) designated the Reserve a Biosphere Reserve under the International Man and the Biosphere program.

The complex and diverse ecosystem of the Apalachicola River Basin and Bay developed under an unimpaired, natural flow regime provided by inflows from the Chattahoochee and Flint Rivers. This natural flow regime created and sustained river channel habitat, cyclical inundations of the floodplain, inter-connections of floodplain channels, maintenance of an appropriate salinity level in the Bay, and provision of essential nutrients into the Bay.

The City of Apalachicola and broader Franklin County support many commercial seafood harvesters, processors, and dealers whose work contributes substantially to the productivity of the region. The vast majority of local people make a living from the fishing industry directly or indirectly. Oysters and other local seafood are the lynchpin of the region's socio-economic structure. Apalachicola Bay provides approximately 90 percent of Florida's oyster harvest (and 10 percent of the national harvest), supports an active recreational and commercial fishing industry, serves as an important nursery area for many marine species, and provides Florida its third largest shrimp harvest.

The River and Bay ecosystem, and thus, the men and women of this region, are entirely dependent on timely freshwater flows to remain healthy and productive. The Apalachicola River is the main source of freshwater inflow to the Bay. That freshwater inflow regulates salinity in the Bay in a way that maintains the biological integrity of sensitive oyster habitats. Equally important is the fact that the Apalachicola River discharges nutrient-rich water into the Bay, which provides the building blocks of the Bay's food chain. In these ways, the River is the lifeblood of this extraordinarily

productive estuarine system, which sustains oyster harvesting, shrimping, crabbing, and fishing. Therefore, the productivity of the Bay is strongly influenced by the amount, timing, and duration of the freshwater inflow from the Apalachicola River. It is important to restore historic flow patterns. Otherwise, the ecosystem and, indeed, the very way of life for generations of Floridians will be devastated.

ADVERSE IMPACTS

Unfortunately, Florida cannot control the volume of water entering the State. Its destiny is subject to upstream influences that are working to undermine the foundation of the region. The amount of water flowing in the River and ultimately to Apalachicola Bay is a function of Georgia's consumption on the Chattahoochee and Flint Rivers and Corps reservoir operations on the Chattahoochee. Since the 1970s, Georgia consumption has grown substantially on both systems and the Corps implemented its "Draft" Water Control Plan to prioritize municipal and industrial water supply operations elevating them above all other uses in 1989.

As a consequence, Apalachicola River flows have been lower and low flows have occurred more frequently and for longer durations than at any time in recorded history. The problem has been most acute in the last 10 years, and is creating long-lasting impacts to the River and Bay. In 2012, Florida experienced widespread damage to its oyster resource resulting from two years of prolonged low-flow conditions. Indeed, last year set a record for the least amount of water delivered to the Bay since records were started in 1923, although this was not the year with the least rainfall. The corresponding reduction in freshwater inflow elevated salinity levels in the Bay well beyond tolerable thresholds, and the continued lack of inflow precluded any opportunity to mitigate salinity

levels. It is well documented that elevated salinity leads to increased incidence of oyster mortality through disease and predation.

State agencies and local fisherman have documented a severe decline in the oyster harvests. Drastic declines in all age classifications of oysters suggest that a collapse of the fishery has occurred. In the latest state agency reports, the oyster production estimates on commercially important oyster reefs are the lowest estimates in the past 20 years. The data suggests that many of the stocks are not sufficiently abundant to support commercial harvesting, devastating the livelihoods of the men and women who make their living directly harvesting oysters or processing oysters on Florida's Gulf Coast.

As a result, Governor Rick Scott requested the Secretary of the U.S. Department of Commerce declare a commercial fishery failure for Florida's oyster harvesting areas in the Gulf of Mexico pursuant to Section 312 (a) of the Magnuson-Stevens Fishery Management and Conservation Act.

MOVING FORWARD

The Corps operates Buford Dam and Lake Lanier as an integral part of the ACF system. Since the 1970s, the Corps has entered numerous contracts with Georgia water suppliers to permit withdrawals from and below Lake Lanier for municipal and industrial uses. In 1989, pursuant to the Draft Water Control Plan, the Corps began prioritizing operations to support this water supply demand, which has increased dramatically over time. Under the Corps' present operating schedule, each new demand placed on the system upstream is absorbed, not from reservoir storage, but entirely from downstream river flows. In other words, every acre-foot of water Georgia wants is

taken directly from flows that would otherwise reach Alabama and Florida. These practices have deprived downstream interests of basic river flow needs, despite the empirical evidence that such operations are devastating Apalachicola Bay and its oyster population.

It is clear that the Apalachicola River needs more flow to help recover from the devastating oyster mortality in the Bay that occurred in 2012, as well as the previous massive die-offs of endangered mussels, decline in fisheries, and drying of the floodplain forest that has occurred in recent years. The Corps' plan to develop a master manual presents an opportunity to restructure its present priority system as reflected in the existing Draft Water Control Plan and assign greater weight to downstream needs. The Corps can no longer assume that all needs can be met without proactively insisting on upstream conservation. At a minimum, the Corps should mandate that Georgia develop strict conservation measures as a condition to entertaining any further withdrawals from the ACF system.

Thank you for the chance to talk to you today about one of Florida's most precious resources: Apalachicola River and Bay. If you are ever able to come to Apalachicola, Florida, we would love to host you for some southern hospitality and, in my biased opinion, the world's best oysters. I am happy to answer any questions.

Senator SESSIONS. Thank you, Mr. Munson.

They do pretty well competing with Bon Secour oysters from Alabama. I have been there and have fished in the Bay.

Mr. Atkins, Alabama does not want to stop all withdrawal of water from Georgia. What do you want and would you articulate for us what you think a proper solution to this water problem is?

Mr. ATKINS. No, Alabama does not want to turn off the tap for all drinking water usage at Lake Lanier and Lake Allatoona. So long as Alabama gets its historical amounts in terms of the amount of water that it has always had flowing in its rivers, then Atlanta simply can drink as much as it wants.

However, that is going to result in lower elevations at the two reservoirs, but Georgia cannot realistically expect to increase its drinking water usage and maintain those reservoir elevation levels in the two reservoirs.

The only way for both those things to happen would be if downstream flows are cut back and Alabama just cannot accept that.

Senator SESSIONS. With regard to the Corps of Engineers, are there things they can do to help the States reach an accord, without going into detail because there have been ongoing discussions between the States for a number of years? Has resolution of the matter by agreement been hampered by some of the Corps' actions, in your opinion?

Mr. ATKINS. I would say yes in answer to that. The issue with the Corps is that the Corps must follow the law. That means they need to follow the law as established by the Water Supply Act by seeking congressional approval for the major water supply uses and Federal reservoirs.

Second, they need to enforce limits of the storage contracts, the contracts that allocate the storage space in the reservoir for water supply. Once they do that, if they will stay out of the way, then I think that will create an opportunity for the States to be able to get together. Otherwise, as it stands now, there is no incentive for Georgia to try to make a deal because the Corps is basically providing everything they want.

By the Corps getting out of the way, letting the States have the opportunity to talk to each other and negotiate in good faith, I think that would be the best chance for that.

Senator SESSIONS. I have talked to Governor Bentley about it. I know he cares about this issue deeply and he is a good and decent man. I believe he is willing to make an agreement but it has to be one that he can justify to the long term interests of the people of Alabama. It has just been difficult.

Mr. Turner, after Judge Magnuson's ruling in 2009, it appeared there was a setback for the Georgia interests. Atlanta interests did a study showing that in little more than a decade, Atlanta could get by without water supply usage from Lake Lanier if it spent maybe \$2 billion on infrastructure and took other actions.

At more than \$272 billion a year, Atlanta has the tenth largest GDP among all U.S. cities, for which I congratulate you. It is a fabulous city. The city plans to build a billion dollar football stadium for the Falcons; why shouldn't Atlanta spend some more of its money on infrastructure rather than ask downstream communities

to deal with severe impacts of low water that could cause them to have to spend more money as a result?

Mr. TURNER. Senator, I take from your question when you refer to Atlanta, you mean the metro Atlanta region. We are spending and will spend and have spent significant State resources. Cobb County, one of the municipalities with an issue with respect to their withdrawal contract from Allatoona, spent \$100 million with the city of Canton on the Hickory Log Creek Reservoir trying to provide for that additional storage that could benefit, frankly, all of us downstream and upstream.

Governor Deal, when he came in having lived this issue for years as a Congressman from the Lake Lanier area, understood this clearly. Georgia is well on the way to appropriating the \$300 million he pledged under the Governor's Water Supply Program to bring on strategically additional storage so that we can share that in times of drought and catch it in times like right now when there is plenty.

Those things are happening, have happened and will continue to happen with vigor. I think I know the study you referenced and we certainly viewed it differently than you did. I think replacement of Lanier, when you consider environment impacts and what it means when you have a very large main stem reservoir that we don't build anymore in this Country, to take that amount of storage and act like you are going to make none of it available for water supply would have been a travesty, a waste of the resource and I am glad we are not in that boat anymore and that we are talking about what is the right way to balance these authorized legal purposes for these Federal reservoirs.

Senator SESSIONS. I agree. I don't think it would be necessary to go to zero but I do think there are alternatives as that study showed.

Senator BOOZMAN, thank you for attending and for your good work on all these issues.

Senator BOOZMAN. Thank you, Mr. Chairman. I enjoyed the testimony.

Thank you for being here. It has been very helpful.

Senator SESSIONS. Mr. Munson, a former Governor of Georgia described the dispute over the ACF Basin as involving people versus a few mussels. Is that what this is about? What does Florida want fundamentally?

Mr. MUNSON. No, sir, it is not about just a few mussels, not that I want to give away even a few of the endangered mussels. It is about a lot more than some endangered mussels. It is really about a way of life in Franklin County, Florida and the people who have spent generations there farming oysters and engaging in other forms of commercial fishing.

Basically, they are being asked to bear the brunt of the growth of Atlanta and other upstream interests in Georgia, meanwhile watching their way of life get taken apart. It is not about a few mussels; it is about a whole way of life in a very rural county, Franklin County, Florida.

All we really seek is an equitable share of the waters of the ACF system. We don't want to take everything, but there is a unique way of life being driven to extinction in Apalachicola. We would

start with commitment from the Corps that it will not entertain anymore requests from the State of Georgia for water supply contracts unless and until it sees some verifiable commitments to water conservation measures from that State.

Even that, of course, will not do it. There are many things Georgia will need to undertake on its own besides what the Army Corps can accomplish by itself, but that would be a very good start.

Senator SESSIONS. Mr. Turner suggested that water supply use in north Georgia is a drop in the bucket compared to flows into Apalachicola. How would you respond to that concern?

Mr. MUNSON. I was not familiar with Mr. Turner's numbers. I was struck a little like the oak tree telling the maple tree to be happy in our shade. I think that is what I took from it.

In fact, I think the comparison is meaningless. The truth is that the depletions throughout Georgia, including Atlanta and the rest of Georgia, take over half the total basin inflow of the ACF river system in times of drought. That is really the dry period, I should say, not necessarily just drought. That is the time period on which we are most focused.

To look outside that timeframe doesn't shed a lot of light on the system. When there is plenty of water in the system, there is plenty for everyone. It is during the dry periods that Florida needs that equitable share.

Senator SESSIONS. Mr. Atkins, with regard to augmentation, that was the purpose of the reservoirs, was it not? You don't get as much augmentation if the water has been drawn out to be consumed as you could get if it were not drawn, it seems to me. Would you comment on that?

Mr. ATKINS. The purpose of reservoirs, generally, is to store water during times of the year when you have high flows, store that water and generally at the drier times of the year, lower flow periods, you release that water to help provide flows downstream.

Senator, may I ask permission to submit for the record the Corps' 2007 letter to Cobb County-Marietta Water Authority about their contract exceedence? I forgot to mention that earlier.

Senator SESSIONS. Can you share the key point of that?

Mr. ATKINS. It is the Corps' letter they wrote in late 2007 recognizing the exceedences from the Cobb County-Marietta Water Authority storage contract and the results of their analyses. They acknowledged that there were exceedences as far as what they had withdrawn in relation to the contract.

You mentioned earlier the contract being 13,000 acre feet. The exceedence had been up to 39,000 acre feet. We would like to introduce that.

Senator SESSIONS. I would be glad to accept that and we will make it a part of the record, without objection.

[The referenced information was not received at time of print.]

Senator SESSIONS. Mr. Munson, as an official in the State of Florida, can you tell the Committee that Florida is serious about working in good faith toward achieving an interState compact?

Mr. MUNSON. Florida would be interested in doing that. Obviously that requires some engagement by the other parties as well. Although we have taken a number of efforts at it over the years, no such compact has been readily available. I don't believe that is

going to change but of course, we would always be happy to have a negotiated compact as a result.

Senator SESSIONS. Don't you think that would be the preferable way to solve this dispute, if it could be achieved?

Mr. MUNSON. If it could be fair to the people of Florida, then absolutely.

Senator SESSIONS. Mr. Turner, is Georgia prepared to work with the other States to achieve a mutually agreeable solution to this difficult problem?

Mr. TURNER. Yes, sir. Governor Deal has been clear on that point since he has been in office. I would even say where there is a will there is a way. We do not live in the arid west. We do get times like now which are plenty and we are open to those conversations and will get to work on them. I am instructed to participate in that way from Governor Deal.

I do not think it ought to stop the work the Corps is, by law, obligated to do under these water control manual updates. Therefore, that should progress, irrespective of what continues to happen between the State conversations.

Senator SESSIONS. Mr. Atkins, would you believe Governor Bentley is committed to trying to reach an agreement that could solve this problem permanently?

Mr. ATKINS. Absolutely, Senator. Again, I think the biggest obstacle is the Corps of Engineers as far as their actions and their role in this. If they would simply stay out of this, if they will follow the law according to the Water Supply Act and enforce the storage contracts, I think that will definitely help things.

Senator SESSIONS. Thank all of you for your testimony. You have to know that maybe other Senators do not feel the problems of Alabama, Georgia and Florida as the Senators from these three States do but it is a very real situation.

Senators Chambliss and Isakson, thank you for your attendance and thank you for being engaged in this and being knowledgeable about it. We have been able to work together and I hope we can continue to do that.

We will have 2 weeks for all members to submit questions for the record. I have exhibits I have offered dealing with the history of these reservoirs and the impact of policies since then. I also have congressional correspondence about the ACF and the ACT issues of which we received a good bit.

Senators Chambliss or Isakson, is there anything you would like to add before we finish? I thank you for your attendance.

Senator CHAMBLISS. Thank you very much for a fair hearing today, Senator Sessions. I do have our joint statement that we will submit to you for the record.

Senator SESSIONS. We will make it a part of the record, without objection.

If there is nothing further to come before the Committee, we are adjourned.

[Whereupon, at 4:25 p.m., the committee was adjourned.]

[Additional material submitted for the record follows.]

Senator Marco Rubio's Statement for the Record
SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
"OVERSIGHT OF ARMY CORPS OF ENGINEERS WATER
MANAGEMENT IN THE APALACHICOLA-CHATTAHOOCHEE-FLINT
(ACF) AND THE ALABAMA-COOSA-TALLAPOOSA (ACT) RIVER
SYSTEMS"

The Water Resources Development Act (WRDA) that passed the Senate in May could have had a positive effect on Florida's natural resources, industries and residents. Every Floridian is impacted by the work conducted by the Army Corps of Engineers in our state. Unfortunately, politics were chosen over sound public policy, and the state's best interests were left out of the final bill.

When this legislation was first passed by the Environment and Public Works Committee, it contained a provision that would have worked to resolve a multi-decade water dispute between our state, the State of Alabama and the State of Georgia. Floridians in Apalachicola Bay have known all too well how this dispute has created economic havoc for our once vibrant oyster industry, as well as all the other industries that are so dependent on the harvesting and sale of that great resource.

To address this issue, I worked with several other senators, including Senator Bill Nelson, to make restoring flows out of Atlanta and towards the Apalachicola Bay my top priority as we began debate on the WRDA. Specifically, this language would have required Congressional approval for reallocation of more than 5% of water in Lake Lanier. Such a provision, if passed, would have resulted in an additional 70 million gallons of water a day flowing down the entire ACF water system. Additionally, this provision would have prevented the State of Georgia from further increasing their withdrawals from Lake Lanier that has for so long negatively impacted the Apalachicola river system and bay in my home state. Finally, by limiting the withdrawals for the State of Georgia, it was my hope and the hope of my Senate colleagues that this provision would finally incentivize the State of Georgia to come to the table and resolve this multi-decade long water dispute through a tri-state compact on water usage throughout the region.

Unfortunately, the language addressing this dispute was taken out of the bill after the Committee approved it due to opposition by the Georgia delegation, and my amendment to reinstate this important policy was not included in the final bill.

Despite this setback, I will not give up on restoring flows towards the Apalachicola Bay. I've requested a field hearing in the Apalachicola Bay area so that my colleagues in the Senate can better understand why this issue simply cannot continue to be held hostage to the broken politics of Washington and I appreciate Senator Sessions' continued attention on this very important issue.

STEVE SOUTHERLAND, II
2ND DISTRICT, FLORIDA
COMMITTEE ON NATURAL RESOURCES
COMMITTEE ON
TRANSPORTATION AND INFRASTRUCTURE

Congress of the United States
House of Representatives
Washington, DC 20515-0902

1229 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-5335
840 WEST 11TH STREET
SUITE 2250
PANAMA CITY, FL 32401
(850) 785-0812
3116 CAPITAL CIRCLE NE
SUITE 9
TALLAHASSEE, FL 32308
(850) 561-3979

Representative Steve Southerland, II (FL-2)

Senate Committee on Environment and Public Works
Full Committee hearing entitled, "Oversight of Army Corps of Engineers Water
Management in the Apalachicola-Chattahoochee-Flint (ACF) and the Alabama-
Coosa-Tallapoosa (ACT) River Systems."

Monday, July 22, 2013
03:00PM EDT
EPW Hearing Room - 406 Dirksen

Chairman Boxer and Ranking Member Vitter, I want to thank you for calling this timely hearing on oversight of Army Corps of Engineers Water Management in the Apalachicola-Chattahoochee-Flint (ACF) and the Alabama-Coosa-Tallapoosa (ACT) River Systems. As the Member of Congress representing the city of Apalachicola, I understand firsthand the impact of reduced downstream flows due to mismanagement by the Army Corps of Engineers.

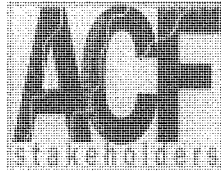
Additionally, I am pleased that today you will hear testimony from Florida Department of Environmental Protection (DEP) Deputy Secretary of Water Resources, Greg Munson. My staff has worked closely with Governor Scott's office and Florida DEP to resolve this issue and I look forward to hearing his insights.

On May 13, 2013, I authored a letter on behalf of the Florida Congressional delegation to House Transportation and Infrastructure Committee Chairman Shuster and Ranking Member Rahall expressing our concerns regarding the present situation impacting Florida's natural resources and economy and requesting that a legislative solution be included in the House Water Resources Development Act. We believe that the Army Corps of Engineers is overstepping its authority by reallocating water from Georgia's Lake Lanier to the Atlanta metropolitan area without proper Congressional oversight. By diverting this precious, limited resource, the Corps is reducing the freshwater flow down the Apalachicola-Chattahoochee-Flint (ACF) River System and, thereby, preventing an adequate water supply from reaching the Apalachicola River Basin and Bay in the Florida panhandle.

Historically, Apalachicola Bay has provided more than 90% of Florida's oyster harvest and nearly 10% of the nation's oyster supply, serving as a major economic driver for the state. The low flows from the ACF system have decimated the local oyster industry, and, by extension, Apalachicola and the surrounding North Florida region that depend on the industry's success.

I am hopeful that this hearing will increase awareness as to the plight of the hardworking Florida families who have made their living on and around Apalachicola Bay for generations, and encourage long overdue legislative action to address this critical environmental and economic issue.

Thank you very much for the opportunity to share my views on this matter. I, along with the Florida Congressional delegation, look forward to working with you in resolving this issue.



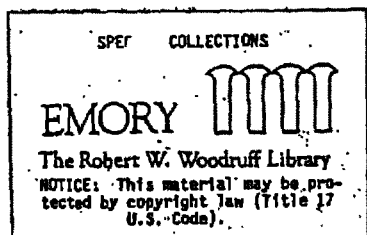
Working together to share a common resource.

For those living in the verdant Southeastern US, water once seemed ever-abundant — until significant population growth over the past three decades combined with an extended drought has brought the region to crisis water levels. Recent drought brought water issues in the Southeast into the national spotlight. However, the regional debate over water sharing began many years earlier in 1989, when the US Army Corps of Engineers was sued for allowing Lake Lanier to supply water to Atlanta area municipalities. The suit claimed that the withdrawals were made without regard to downstream interests, and that the federally-managed reservoir was built for the purposes of flood control, hydropower and navigation — not water supply. For over 20 years, the Apalachicola-Chattahoochee-Flint (ACF) River Basin case was tied up in the courts, with little headway.

Seeing the need for a water sharing solution, a diverse group of people in the ACF Basin was inspired by the question, *How can the people who live, work and utilize the water resources of the Apalachicola-Chattahoochee-Flint Basin work together to share a common resource?* Stakeholder forums held throughout the basin confirmed a very real desire to collaborate. With litigation and politics unable to resolve the issues, a grassroots effort was launched by individuals and groups most affected by the situation – the stakeholders themselves. In March 2009, volunteers representing all four regions of the ACF Basin became the founding Steering Committee of ACF Stakeholders, Inc. (ACFS). Today, the 56 member ACFS Governing Board, work groups and sub-basin caucuses are engaged in a collaborative effort to produce a Sustainable Water Management Plan. ACFS has raised over \$1.3 million in private funds, engaged technical consultants for analyses of current water demands and returns, instream flows, current conditions modeling, an assessment of Apalachicola Bay and evaluation of water management alternatives; and its members have submitted consensus comments during the scoping process for USACE revisions to the Water Control Manual for the basin. The Stakeholders have already achieved consensus acceptance of key background materials with the goal of developing a draft Plan by early 2014.

From the beginning, the charter members knew that the organization had to include representation from all interest groups if it was to realize the potential for real compromise. Incorporated as a 501(c)3 nonprofit organization in September 2009, ACFS is a diverse group of cities, counties, industries, businesses, fishermen, farmers, historic/cultural, environmental, conservation and recreation groups from all three states — working together for the first time to achieve a common goal. Their mission is to achieve equitable water-sharing solutions among stakeholders that balance economic, ecological, and social values, while ensuring sustainability for current and future generations.

Attachment 1



Patron's Name _____
 Collection John J. Davis
 Box No. 205 Item No. 10
 Special Instructions: _____
 (from your list)

1 clipped page

27 Feb. 1948

Hon. Wm. B. Hartfield
 Mayor
 City of Atlanta
 City Hall
 Atlanta, Georgia.

My dear Bill:

Under separate cover I am sending you a printed copy of the hearings before the Civil Functions Appropriations Sub-committee on the Buford Dam. You will find your testimony on page 781 through 784.

I am also enclosing herewith a speech which I made on the floor of the House yesterday about this item. You will note that Congressman Engel and Mahon referred to other projects upon which cities had made contributions. On page 380 of the printed hearings which I am sending you under separate cover, you will find a statement by Colonel Perkins for instance, that Dallas, Texas made a contribution of \$8,178,000 to the Grapevine Reservoir in Texas. You will see from this, that this sub-committee is not undertaking to set a new precedent insofar as the Buford Dam is concerned.

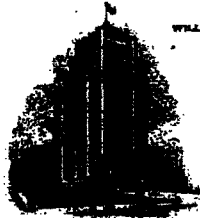
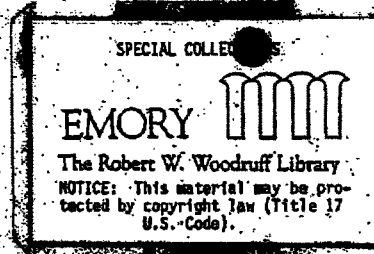
I am reasonably certain that we can have this money placed back in the bill in the Senate, and I am going to Congressman Engel, the Chairman of the Sub-committee, and try to get him in the proper frame of mind to put enough in the bill this year to finish the planning. I am going to try to convince him that if a contribution is what he wants, it is not necessary to take the project out of the bill and stop it entirely to get it—I am going to undertake to convince him that he does not have to deal with us like a field hand ~~pulling~~ a grand piece, and that he is dealing with a responsible people, who can and will deal with the government on a just and equitable basis.

I will keep you posted of all developments.

Sincerely yours,

Attachment 2

Patron's Name
Collection Davis, James
Box No. 205 Item No. 8
Special Instructions: (from your list)



WILLIAM B. HARTSFIELD
MAYOR

EDMUND A. BREWER
EXECUTIVE SECRETARY

CITY OF ATLANTA

OFFICE OF THE MAYOR

AGREEMENT 3, 1948

March 1, 1948

Mr. James C. Davis
Congressman, 5th District
136 House Office Building
Washington, D.C.

Buford Dam

Dear Jim:

I have yours of February 27, with reference to the argument of Mr. Engel that Atlanta should contribute to the Buford Dam.

In the first place, corporate Atlanta is only thirty-five square miles while the Atlanta Water Works now serves an area running from Conley in Clayton County through DeKalb and Fulton and sixteen miles in to Cobb County and Marietta, all of which territory has an interest in a good water supply.

Frankly, in our zeal I think we have just laid too much emphasis on the Chattahoochee as a water supply.

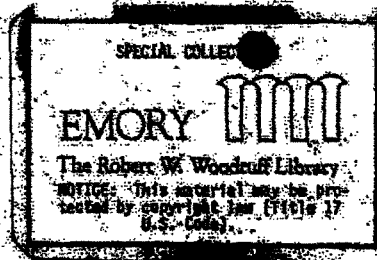
In the case of Dallas, Texas - they got their water from certain large flat lakes which on account of exposure to hot sunlight promoted such plant organisms which gave the water a bad taste and they had to do something and were very large on the defensive in the matter of water supply. The same was true of Los Angeles where the procuring of water outweighed all other considerations.

In our case the benefit so far as water supply is only incidental and in case of a prolonged drought. The City of Atlanta has many sources of potential water supply in north Georgia. Certainly a city which is only one hundred miles below one of the greatest rainfall areas in the nation will never find itself in the position of a city like Los Angeles.

Specifically, the City of Atlanta could go to the Coosawattis River which flows through Gilmer County near Ellijay. The Georgia Power Company owns the water rights and has on occasion offered them to the City. A small dam there and a pipe line will bring the water by gravity without the necessity of a single pump.

Certainly in view of other possible sources of Atlanta's future water we should not be asked to contribute to a dam which the Army Engineers have said is vitally necessary for navigation and flood control on the balance of the river.

Patron's Name	
Collection	<u>Davis, James</u>
Box No. <u>205</u>	Item No. <u>8</u>
Special Instructions: (from your list)	



- 2 -


North Georgia is full of water from many sources and our situation ought never to be confused with that of western cities located either in arid deserts or on flat plains where a source of pure water is a desperate necessity outweighing all other considerations.

With best wishes, I am

Yours sincerely,

W. M. Matfale
Mayor

Attachment 3

SPEI COLLECTIONS		Patron' <u>me</u>
EMORY  The Robert W. Woodruff Library NOTICE: This material may be protected by copyright law (Title 17 U.S. Code).		Collection <u>James D. ...</u>
		Box No. <u>205</u> Item No. <u>9</u>
		Special Instructions: (from your list)

5 March 1968

Hon. Mr. B. Hartfield, Mayor
 City of Atlanta
 Atlanta, Georgia.

My dear Bill:

Your letter of March 1st is received concerning the Buford Dam. I have noted your remarks concerning the differences which exist in the relationship of Atlanta to the Buford Dam and the relationship of Dallas, Texas to certain federal projects in that vicinity. There is no valid argument which can be made against your conclusions in this matter. I shall do all within my power to convince the Civil Functions Committee of the correctness of this view.

I think we will get out money back in the bill in the Senate, and in the meantime I am going to talk to Chairman Hagel and other members of the Committee and endeavor to hold it in when the bill gets to conference. I will be calling on you for help, if I get in a tight.

Thank you very much for your letter, and with highest personal regards, I am

Sincerely yours,

9 8 22 (L) 2 1 7 1 - (2)

Attachment 4

**CIVIL FUNCTIONS,
DEPARTMENT OF THE ARMY
APPROPRIATIONS FOR 1952**

HEARINGS
BEFORE THE
SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES
EIGHTY-SECOND CONGRESS

FIRST SESSION

SUBCOMMITTEE ON DEFICIENCIES AND ARMY CIVIL FUNCTIONS

JOHN H. KERR, North Carolina, *Chairman*

CLARENCE CANNON, Missouri

GLENN E. DAVIS, Wisconsin

LOUIS C. RABAUT, Michigan

GERALD R. FORD, Jr., Michigan

CHRISTOPHER C. McGRATH, New York¹

CORRAL D. ORRISMAN, *Executive Secretary to Subcommittee*

¹Temporarily assigned.

PART 1
DEPARTMENT OF THE ARMY

Printed for the use of the Committee on Appropriations



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1951

Mr. RABAUT. You notice there were vast quantities of miscellaneous war materials and munitions shipped to Jacksonville Harbor sometimes with difficulty and undue delay, due to inadequate channel depths.

Colonel POTTER. When that happens, we have to wait outside until we get a high tide and then slip in.

Mr. RABAUT. And you cannot do that in wartime.

Colonel POTTER. No, sir.

Mr. FORD. What percentage of the tonnage of the harbor will be national defense?

Colonel POTTER. The tonnage that will use the deep harbor will be oil tankers, and it is the oil tankers that go into this rather large naval oil terminal.

Mr. FORD. It is an oil terminal for commercial interests, also?

Colonel POTTER. Yes, sir; it is. The 1949 tonnage consisted principally of petroleum products, building materials, fertilizers, fresh and frozen fruits, and miscellaneous cargo, but petroleum was the largest part.

Mr. FORD. Is there a substantial proportion of that petroleum which is directly connected with the war effort? I mean the ordinary tonnages of petroleum can wait, as far as I am concerned. I think we ought to have some definite figure showing the percentage of petroleum related to the war effort.

Has this project been certificated as a national defense project?

Colonel POTTER. It did not require certification. The certificate was for new starts only.

BUFORD DAM, GA.

Mr. RABAUT. The next project is Buford Dam, Ga. This is a project at a total estimated cost of \$40,225,000. Allotments to date are \$2,800,000. The request for 1952 is \$900,000. They had an appropriation in 1951 of \$900,000.

This is a project that is just getting under way. I do not know how far it is under way, but we want the justification for this project.

Colonel POTTER. Buford Dam is on the same stream as the Jim Woodruff. It is away upstream above Atlanta but on the same stream and is part of the survey report. All four of them were authorized at the same time.

This project will produce power, one unit at 6,000 kilowatts and two units at 40,000 kilowatts each or a total of 86,000 kilowatts.

The purpose of the project is flood control, water supply for the city of Atlanta, which is growing by leaps and bounds, and the production of power. The city of Atlanta is vitally interested in the provision of this water supply and has many letters on record requesting that we expedite it to the greatest possible extent.

With the money we request this year, \$25,000 only will go into necessary lands for the construction that is already under way. You will notice a large part—\$500,000—of the past moneys have been used for the definite project report and plans and specifications, and we have constructed one of the saddle dikes of the left abutment and have built some facilities for our own use, such as the administration building, and so forth.

The largest part of the money requested, \$825,000, will be used for the excavation of the forebay, which is the approach to the power tunnels through the left abutment.

Mr. KERR. You can maintain the present work standards if you get the \$900,000?

Colonel POTTER. We can keep it going; yes, sir.

EFFECT OF POSSIBLE SUSPENSION OF PROJECT

Mr. DAVIS. The work you have done so far is nothing that would be lost in case of the suspension of this project; is it?

Colonel POTTER. There would be erosion in some of the deep cuts we have made in the approaches to the power tunnels. We would have to spend some maintenance money in maintaining some of the features that have been built.

Mr. DAVIS. What do you mean by "some"? Can you give me some sort of an estimate of that?

Colonel POTTER. It would be strictly off the cuff, but I would say in the neighborhood of \$10,000 a year or something like that. We would have to cancel our contracts for the turbines and generators.

Mr. RABAUT. Are they now in the course of production?

Colonel POTTER. They are under design. I do not believe they are in production yet. The contract is already let and will ultimately cost \$3,600,000. We would have to cancel that contract and negotiate an arrangement with the contractor to let him off clean. It would cost us considerable money to do it. As I say, that contract is already let.

Mr. DAVIS. Is this power equipment something that could not be used in any other place?

Colonel POTTER. Normally, generators and turbines are hand-built machines for a project, and for this project you notice we have two units at 40,000 kilowatts each. They are built to operate under a certain head of water and a certain amount of water. They could be used in another dam that had the same conditions and only then. They are not a mass-produced item; they are built by hand and are rather large.

POWER CAPABILITIES OF PROJECT

Mr. DAVIS. The only immediate justification for this would be the power item, if we have these other dams that fit into the pattern that have not been started, and, as far as navigation is concerned and probably to some extent flood control, too, all four make up the pattern; is that not true?

Colonel POTTER. Yes, sir. The flood control on this structure is important downstream. I would say in view of the importance of the city of Atlanta, the water supply is of equal importance. Atlanta is a rapidly growing city. There are large defense industries there, but we are not predicating this on defense, except that electricity has been requested by the Southeast Power Administration.

This [exhibiting] is a chart we prepared about a year ago, to study the power capabilities of the area to serve Tullahoma, and we found it so useful that I would just like to show you where some of these projects are with respect to that area which is a large user of electricity.

Also in this area [indicating] sits Oak Ridge, which is one of the largest users of electricity in the country. This [indicating] is a 100-mile circle; this is a 200-mile circle; and this is a 300-mile circle. Electricity can be shipped by wire about 300 miles economically.

Here [indicating] is Allatoona, which is finished and which is now putting 74,000 kilowatts on the line. We started putting it on the line on December 1, 1949.

Buford Dam is practically next door to Allatoona, and the power from Buford Dam would augment the TVA system, and the power now serving this area which comes from TVA could be served by this dam and TVA power could be transferred to projects wherever needed.

This is Jim Woodruff down here [indicating]. Its need is in its own area.

Here [indicating] is the upper Columbia, and then the Fort Benning projects sits about in here [indicating].

The river goes right by Atlanta. You notice the position of Buford Dam with respect to Atlanta. The fact that it does furnish important flood control, and water from Buford will give a regular supply and makes it important to the city of Atlanta.

I would like to be able to show this chart when we discuss all of these projects that fit into our Southeast Power system. All of these projects come under the general supervision of the Southeast Power Administration, which disposes of the power for the Department of the Interior.

BENEFIT OF PROJECT TO ATLANTA

Mr. DAVIS. Would you consider Atlanta's situation with respect to flood control at all critical in the absence of this dam?

Colonel POTTER. Do you mean is this dam necessary for Atlanta's flood control?

Mr. DAVIS. Yes.

Colonel POTTER. It is in the ultimate plan; yes, sir. I cannot give you the exact figure, but I would say it would reduce the maximum flood at Atlanta by somewhere in the neighborhood of 1 foot. And it is the top foot that does the most damage, Mr. Davis.

Mr. DAVIS. Is Atlanta cooperating in this project in any way?

Colonel POTTER. No, sir; because this is not a problem of furnishing water directly or furnishing storage for that purpose; it is the regulation of the river that gives them a constant supply over the up-and-down supply now existing during the year. The river gets very low in the summertime, and then they have rather to scramble for water. With this dam letting out a constant supply of water every day their water-supply problem is reduced immensely, to the point where the project is of importance to them for water supply more than for any other reason.

Mr. DAVIS. As an immediate project in and of itself, then, it can probably be more justified now than any one of the other three in this system; is that correct?

Colonel POTTER. If you ask me which project in our budget we can eliminate and not hurt the program, I could not give you an answer.

Mr. DAVIS. Which of those would you consider the most important; which can stand best on its own feet?

Colonel PORTER. All of them, sir.

Mr. DAVIS. I am afraid you are not answering my question.

Colonel PORTER. Mr. Davis, our last year's budget that we came before this committee with was \$800,000,000. This year's budget is \$600,000,000. It has been boiled down to the vital projects that we feel are necessary, as the general [General Pick] stated.

Mr. DAVIS. I will let it go at that for now.

Mr. FORD. This is truly a multiple-purpose project?

Colonel PORTER. Yes, sir.

Mr. FORD. With all aspects?

Colonel PORTER. With all aspects except irrigation; yes, sir.

ATLANTA WATER SUPPLY

Mr. FORD. In figuring the justification, do you take into account the water-supply needs of Atlanta?

Colonel PORTER. Yes, sir.

Mr. FORD. Is that a function of the Federal Government—to help provide water for a community?

Colonel PORTER. For a community or locality; yes, sir. It is in the order of the Public Works Committee directing us to study it. The Corps of Engineers will study for the purpose of flood control, water supply, power, and all other uses of water. They generally end up with that sentence.

Mr. FORD. Where you have a project such as this particular project and water supply is part of the justification for a community, does not the community make any contribution to the project?

Colonel PORTER. Yes, sir, normally, but not in this case, and I would like to clarify the conditions. For instance, there is a dam up near Dallas where the community has asked us to increase its capacity or asked us during the survey report stage to increase its capacity above that required for flood control, purely for the purpose, I believe, of reserving for them 310,000 acre-feet of water supply. We calculated the cost of providing those 310,000 acre-feet, and it came out, as I remember it, at \$3,000,000. They had to put up that amount of money when we got our first appropriation. That was a definite storage item.

This dam furnishes Atlanta with water due to the fact that it regulates the discharge of floods. When a flood comes, it comes down in a certain set period—say a week. We store that week's terrific runoff of water and then let it out gradually—say at a rate of 25,000 second-feet or something less than the bank-full stage of the river. Hence we discharge that flood, we will say, for 3 months.

Then, in the production of electricity, we can discharge somewhere in the neighborhood of 4,000 or 5,000 second-feet constantly. That 4,000 or 5,000 second-feet is a rather large amount of water, and it will always be flowing by Atlanta; so that now they won't have the river partially dry or full of mud in the summer, but they will have a more or less constant flow of the river past their door and will always be able to pull water out of it.

It did not cost the Federal Government 1 cent to supply that service, because it was an adjunct to the power supply and flood control. Had we put in some storage purely for water supply, which they would tell us to release at certain intervals, we would then

charge them for it, and they would have to pay for the difference of that construction cost.

Mr. FORD. Is it not conceivable in the future, though, when this particular project is completed, that the city of Atlanta will make demands on the Corps of Engineers for certain water at certain times because of the needs of the community, when at the same time it will be for the best interests of the over-all picture—power, navigation, and flood control—to retain water in the reservoir? Now, what is the attitude or what will be the attitude of the Corps of Engineers under those circumstances?

Colonel PORTER. We have a case in point where a community is requesting that we make a water supply available to them out of a completed structure. That water can be used and is being used to produce power; therefore, it would have to be diverted to the water supply for this community.

The first thing we do is to decide, after a study, whether or not the water supply is more valuable to use for the production of electricity. If it is, then we would have to come back, I believe, to Congress to alter the authorization of that project, were it a major diversion of the water.

Mr. FORD. When that particular project was authorized and funds were appropriated, was the water supply figured in the economic justification?

Col. PORTER. It was not, because this particular little community has grown due to some rather large close-by defense plants, and consequently the workers and laborers live in that area, and the town has expanded its area of distribution of water. They have gone out into the county to distribute water.

That study is not yet completed, Mr. Ford, but it is very important, and we take a very dim view of changing a project to the subsequent needs without Congress having a hand in it.

Mr. FORD. It seems to me that this project is almost exclusively for the benefit of the city of Atlanta water supply, flood control, navigation, and to some extent electric power. I would like to see the justification for it.

BENEFITS OF PROJECT

Colonel PORTER. Let me use this as an example. For the entire project of which Buford is a part, the flood-control benefits are \$81,000 a year; land-enhancement benefits down the whole stream to the mouth, \$82,000 a year; navigation benefits—and remember those structures only come up as far as Columbia, not Atlanta; just to Columbia—\$1,391,000; power benefits, \$6,699,000; and other benefits, \$50,000.

Mr. FORD. Ratiowise, power is the major factor?

Colonel PORTER. Eighty percent.

Mr. FORD. And the power is principally usable where?

Colonel PORTER. The power will principally be used, I would say, within a 50- to 80-mile circle of the dam. The utilities in this area are closely interconnected and operate in coordination with the utilities in power supply area No. 22, which is Alabama.

Mr. FORD. How far is Atlanta from Buford Dam?

Colonel PORTER. About 30 miles.

Mr. FORD. So Atlanta is within the area?

Colonel POTTER. Yes, sir. This will also serve Birmingham—power from this dam.

Mr. FORD. Where is Birmingham; how far is that—probably 150 miles?

Mr. SMET. About 175 miles.

Mr. FORD. Why, if this project is so urgently needed, have you not asked for more funds for 1952?

Colonel POTTER. The budget estimate is for \$900,000.

Mr. FORD. In other words, the Corps of Engineers requested more?

STATUS OF BUFORD PROJECT

Mr. RABAUT. I note that the Buford project is about 6 percent completed.

Colonel POTTER. Yes, sir.

Mr. RABAUT. So it is truly in the initial stage?

Colonel POTTER. Yes, sir.

Mr. RABAUT. The request for \$900,000 will bring it up to 8 percent?

Colonel POTTER. Yes, sir.

Mr. RABAUT. In this connection, whereas the allotment to date has been about \$2,800,000, if I recall your testimony correctly you said you had entered into negotiations for the expenditure of about \$2,800,000 in the contract for generators; was it not?

Colonel POTTER. No, sir; for the excavation of the forebay tunnels and tailrace.

Mr. RABAUT. On top of that, you have the generators in the drawing stage?

Colonel POTTER. In the design stage.

Mr. RABAUT. I am just asking this as a matter of information. Is it customary and necessary, for instance, under your normal processes in these things really to get on paper an amount of money equal to the full amount you have had in the initial stage of the project?

Colonel POTTER. The forebay tunnels and tailrace have a total cost of about \$3,500,000. That is a very small part of the project. Were the appropriation history of this project higher, we would have let bigger contracts and pushed it harder.

AUTHORITY TO OBLIGATE IN EXCESS OF APPROPRIATION

Mr. RABAUT. This contract, though, is really let for a sum in excess of your appropriation; is it not?

Colonel POTTER. That is usual.

Mr. RABAUT. To what extent do you do that?

Colonel POTTER. I presume a general figure would be around 10 percent of money on hand is sufficient to start a continuing contract. If we had to 10 to 15 or 20 percent of the total cost of a contract on hand, we would advertise it, for this reason: the excavation of the forebay tunnels and tailrace is probably about a 2½-year contract. Should we have \$3 million on hand and put it into that contract, that money would sit idle over the entire time that it was not being used. We put into the contract only that amount of money that we think the contractor can use during the fiscal-year period concerned, so that the project is not charged with interest during the construction on money that is not being used.

Mr. RABAUT. So it boils down to this, that in this manner you save some money?

Colonel POTTER. In one economic analysis you save 3 percent on the investment during the construction.

Mr. DAVIS. Are you not putting yourself in a position to some extent of contracting or obligating the Government for money that has not been appropriated?

Colonel POTTER. Well, that is a normal practice. Until a project has received its first appropriation, we spend no money on it, but, when it receives its first appropriation, we take it that the Congress has said, "We are going to build this project," and our contracts are drawn up on the basis that the contractor must govern his actions by the thought that Congress will appropriate money in future years, although we cannot guarantee it and say so. But we must assume, when you give us an appropriation on a structure, that it is going to be built.

Mr. RABAUT. I thought we assumed—and this is not anything against this particular project; this is just about the general situation—when we gave you \$2,300,000 that you would enter into some activity to the extent of the \$2,300,000.

Colonel POTTER. Well, as an example, this is our normal way of operation and always has been. At Chief Joseph Dam, we let a contract for the entire dam which will cost \$50 million or \$60 million, and we put only about \$5 million to \$6 million in a contract to start, or maybe \$10 million. As soon as we put in a contract that the money is available, that is earmarked, and we cannot touch it any more. It is sitting right there for the contractor's payment and his surety expects it to be there.

Mr. RABAUT. What authority do you have to obligate the Government, for instance, beyond the \$2,300,000?

Colonel POTTER. The authority that you have indicated that you want this structure built, and the normal way of contracting for a project of this size is to divide it up in pieces, build this piece with the expenditure of this money and, when it is finished, build the next piece with the expenditure of later money.

Mr. DAVIS. Of course, that leaves us in the position, if you follow through on that, where we probably have billions of dollars of authorizations sitting around in the weeds; and it almost puts us in the position, even though it may be the accepted practice for the engineers, of committing ourselves to the extent of those authorizations without this committee ever sitting.

Colonel POTTER. No, sir. Let us say we do have 300 authorized projects in the books. None of those projects will have 1 cent spent on them until this committee gives the first construction appropriation. This budget contains about 120 or 130 construction projects. There are many more than that authorized, but the Congress has said we will build those 120 or 130. We must assume you are going to build them under normal conditions.

OPERATIONS UNDER CONTINUING CONTRACTS WHEN APPROPRIATIONS
ARE REDUCED

Mr. FORD. Do you ever get in a position where you have let a contract for more than the sum that has been authorized, and then the next year no appropriation is forthcoming and consequently there are no funds available for the part you have let the contract for?

Colonel POTTER. Let us take that assumption and say on a certain project we ask for \$9 million and you appropriate \$7 million. We then divide that \$7 million up among our requirements, including, let us say, two going contracts, and we say to each one of the contractors, "This year you must operate on this amount of money." He then gages his operations to use that amount during the year. If he expects or his equipment is capable of using \$3 million and he gets \$2 million, that is all we can pay him. But if the Congress should give no money for the project, we would have to terminate the contracts, negotiate the termination, and then ask the committee for the amount that the termination cost.

Mr. FORD. When you let a contract for a \$30 million dam—we will say the Chief Joseph Dam—do you estimate at what time that dam is to be completed?

Colonel POTTER. Yes, sir.

Mr. FORD. And you set up a chart like you showed Mr. Davis this morning?

Colonel POTTER. Yes, sir.

Mr. FORD. And he is to be guided accordingly?

Colonel POTTER. Yes, sir.

Mr. FORD. What happens in your contract with that contractor if the funds are decreased?

Colonel POTTER. We have not guaranteed him any specific amount for the second, third, or fourth year, if it is that long a contract. But let us take this project at Buford. We say we will complete this project in December 1955. Were we operating under the premise that Mr. Davis is establishing, your first appropriation for Buford Dam would have had to have been \$40,225,000, of which nine-tenths would have sat through the first year unused, and over a period of 6 years we would have had money sitting in the Treasury against the project totally unused and serving no useful purpose whatsoever.

Mr. RABAUT. There is something to what you say. On the other hand, can you cite the law that permits you to obligate the Government beyond the amount of the appropriation?

Colonel POTTER. We are not obligated beyond that amount, sir. Each and every continuing contract we sign says this: It is expected that Congress in future appropriations will provide money for the continuance of this contract. However, there is no guaranty that this is so. The contractor must take the chance that the Congress will so appropriate funds. We have been operating this way for so many years and each and every contractor naturally assumes that the money will be made available. You can see from our operation on Buford Dam we have not entered into any large contracts under the amounts we have gotten.

Mr. RABAUT. We would still be obligated to effect a settlement here. The reason why we would be obligated to effect a settlement is because

the amount that is contracted for is beyond the amount of the appropriation of \$2,200,000; whereas, the obligation is up to \$2,600,000.

Colonel POTTER. Yes, sir.

Mr. RABAUT. I do not think that is in the law.

Mr. FORD. The inclusion of that clause that you paraphrased does not save the Government if in the third year no funds are appropriated; does it?

Colonel POTTER. I might say in 1943 we were directed to terminate practically every project we had under construction. It cost the Government millions of dollars to terminate those contracts.

In this case Congress appropriated money and the Steelman order terminated all projects and ordered us to terminate the contracts and pay them off. It cost us millions of dollars for which we received no useful work.

Mr. FORD. But that clause in the contract does not really protect the Government against any damage claim?

Colonel POTTER. I do not believe that the contractor would collect under a continuing contract.

SAVANNAH HARBOR, GA.

Mr. RABAUT. Next we come to Savannah Harbor, Ga. This is a project with a total estimate of \$9,057,700. The allotment to date has been \$8,487,700. The request for 1952 is \$370,000.

This project is 83 percent completed and this is close to the final amount to complete the project.

Colonel POTTER. That is correct.

Mr. RABAUT. The appropriation for 1951 was \$498,000 and there was an additional appropriation of \$50,000.

Colonel POTTER. Yes, sir.

Mr. RABAUT. Please justify this request for \$370,000.

Colonel POTTER. This is a very important harbor with commerce approaching 3,000,000 tons a year. It serves a very large industrial area. The local interests are constructing warehouses and piers in addition to those they already have. The \$311,000 we are asking for is for the realinement of the channel at the Seaboard Air Line Railway bridge.

Mr. DAVIS. This looks like a wind-up project.

Colonel POTTER. Toward the end.

Mr. FORD. This would look like a case where you could pretty well prove your justification.

Colonel POTTER. Yes, sir. It is a major harbor on the east coast.

ILLINOIS WATERWAY

Mr. RABAUT. Next we come to item 10, the Illinois waterway. This is a project with an estimated cost of \$29,164,800. The allotments to date have been \$27,422,300. This project is now 94 percent completed and the present money will bring it up to 95 percent. Please give us the justification for this request.

Colonel POTTER. The Illinois waterway is one of our more important inland waterways. I showed you a chart yesterday showing the growth of traffic, the annual charges, and the benefits obtained.

BENEFITS DERIVED

Mr. FORD. General Chorpeneing, could you give us a breakdown on the benefits from the Jim Woodruff Dam?

General CHORPENING. I cannot give the benefits of the Jim Woodruff Dam as a unit because it is tied in in the justifications with the other three dams of the systems. I believe that I gave those for the record yesterday, but I will be glad to give the benefits, as we figure them, again.

The flood-control benefits of the system are estimated at \$163,000; the navigation benefits at \$1,490,000; the power benefits at \$7,034,000, and the enhanced land values at \$50,000, a total of \$8,737,000 on the entire system. You will note that the greatest benefits by far accrue from the power.

Mr. FORD. Those are the only benefits for all four dams?

General CHORPENING. Yes, sir.

Mr. FORD. But you have no breakdown for the individual units of the system?

General CHORPENING. That is correct.

Mr. FORD. And those benefits result in a benefit-to-cost ratio of 1:2?

General CHORPENING. Yes, sir.

Mr. FORD. If there is no construction of Fort Benning and upper Columbia then there will be a substantial decrease in the over-all benefits to be derived?

General CHORPENING. The decreased benefits will be mainly in the navigation benefits. There will be some decrease in power benefits, but the main navigation benefit is not achieved if the upper dams are not constructed.

Mr. FORD. Do you now have under construction power at Jim Woodruff?

General CHORPENING. Yes, sir.

Mr. FORD. Are all four projects multipurpose projects?

General CHORPENING. Fort Benning is not, that is navigation only. The other three—Buford, upper Columbia, and Jim Woodruff—all have power.

COST ESTIMATE ON FORT BENNING

Mr. FORD. What is the present cost estimate on Fort Benning?

General CHORPENING. We will look that up and supply it for the record.

Mr. FORD. Last year it was testified as \$11,101,000.

Mr. SMET. It is \$11,882,000 at present.

Mr. FORD. How do you account for that increase?

Mr. SMET. That would be the price index increase, because we have had no further studies on that project.

Mr. FORD. That is strictly the increase based on the engineering index?

Mr. SMET. That is correct.

COST OF UPPER COLUMBIA LOCK AND DAM

Mr. FORD. What is the present estimate of the cost of the upper Columbia Lock and Dam?

General CHORPENING. The present estimated cost of upper Columbia is \$47,164,000.

Mr. FORD. That compares with \$44,384,000 a year ago?

General CHORPENING. That is correct, again on the engineering cost index.

Mr. FORD. Last year Colonel Potter testified that the Jim Woodruff capacity is about eight-tenths of 1 percent of the capacity presently installed in the surrounding States of Georgia, Alabama, and Florida.

Has there been any revision of that figure?

General CHORPENING. I do not know, but I would say in the past year that any revision would be very minor. It would be whatever capacity may have come on the line in private plants in the meantime. If you would like to have us make a restudy of that we can do so and supply it for the record.

Mr. FORD. I think it would be helpful to have it included.

General CHORPENING. Yes, sir.

(The matter referred to is as follows:)

The capacity of the Jim Woodruff Dam is about eight-tenths of 1 percent of the total capacity presently installed in the surrounding States of Georgia, Alabama, and Florida.

NAVIGATION RESULTING FROM OVER-ALL PROJECT

Mr. FORD. Could you give us any figure showing the potential navigation resulting from the construction of the over-all project?

General CHORPENING. We can, but I want to supply it for the record.

Mr. FORD. With that information can you include some breakdown on the type of traffic?

General CHORPENING. Yes, sir.

Mr. FORD. Also a comparison of the traffic which now flows on the rivers above?

General CHORPENING. There is very little traffic there now because there is no improved channel at all in the Chattahoochee at this time.

(The data referred to are as follows:)

The prospective commerce expected to use the waterway on completion of the entire comprehensive improvement is 409,800 tons. The principal items of prospective traffic are cotton, salt, petroleum products, iron and steel. The 1950 tonnage amounted to 36,705 tons of gravel, none of which was transported on the Flint River.

BUFORD DAM, GA.

Mr. RABAUT. The next project, is "Buford Dam, Ga." Buford Dam is part of the Apalachicola, Chattahoochee, and Flint Rivers system. The total estimated Federal cost is \$41,052,000. The allotments to date have been \$3,200,000. The appropriation for 1952 was \$900,000, and the tentative allocation for the fiscal year 1953 is \$3,000,000.

This project will be 8-percent completed, as of June 30, 1952. The request for fiscal 1953 will raise the percentage to 15 percent.

What is the relationship between Buford and Jim Woodruff as regards power and navigation?

General CHORPENING. Buford is the uppermost dam in the series of four on the Chattahoochee. It will have no navigation lock within it, but it will, however, provide a smooth flow of water down the Chattahoochee which will assist in the navigation and, of course, it will produce 86,000 kilowatts of power.

POWER SUPPLY

Mr. RABAUT. What effect will it have on Jim Woodruff power?

General CHORPENING. By installing power at Buford and thereby having the regulated flow coming out of the Buford Dam down the river it will increase the dependable electric capacity at Jim Woodruff. We can install 4,500 kilowatts more, and increase the average energy 6,000,000 kilowatt-hours.

Mr. RABAUT. Then it will firm the power?

General CHORPENING. Yes; it will help to firm the power at Jim Woodruff.

LAND ACQUISITION

Mr. RABAUT. What steps have you taken to inform the people in the reservoir area regarding the land that will be taken?

General CHORPENING. I do not have personal information on that; I am not certain.

Mr. RABAUT. Will you supply it for the record?

(The matter referred to is as follows:)

The customary procedure of holding public hearings on the Buford Dam project was followed, and the reservoir area outlined for the information of the general public. Final determination of the land tracts involved have not been made.

INADEQUATE MAPS

Mr. RABAUT. I understand the maps of the reservoir area are totally inadequate, and that the corps will have to run their own survey to determine the land to be taken. Are funds included herein for that purpose?

General CHORPENING. I think that statement is correct, that the maps are in poor shape, and I am certain that is included in this estimate.

Mr. RABAUT. Was not the Coast and Geodetic Survey ever requested to map this area?

General CHORPENING. No. There are many sections of the country that the Coast and Geodetic Survey and the United States Geological Survey have not covered with accurate maps; very many of them.

Mr. RABAUT. And this is one of those sections?

General CHORPENING. I think it is, and each year, I might say, Mr. Rabaut, that we work with the USGS in recommending to them priorities for the maps we will need of this country.

Mr. RABAUT. You feel that the funds are included herein for the purpose of making those maps?

General CHORPENING. Yes, sir.

Mr. KERR. What is the distance between Buford Dam and Jim Woodruff Dam?

General CHORPENING. 350 miles.

PRIVATE POWER FACILITIES ON THE CHATTAHOOCHEE RIVER

Mr. RABAUT. What private power facilities now exist on the Chattahoochee River?

General CHORPENING. There are a number of existing dams in the Chattahoochee River now belonging to private power facilities. I can read them, if you like. I have the names here.

Mr. RABAUT. Yes; put them in the record.

General CHORPENING. Morgan Falls, with a capacity of 16,800 kilowatts; Langdale, with a capacity of 4,010 kilowatts; River View, with a capacity of 4,180; Bartlett's Ferry, with a capacity of 65,000, that is assuming the new unit of 20,000 kilowatts which is being installed in that area is in operation now.

Mr. RABAUT. How far advanced is the Bartlett's Ferry project?

General CHORPENING. It was supposed to be on the line about February. Goat Rock, 16,000; North Highlands, 6,900; City Mills, and it is inoperative, 300; and Eagle and Phoenix, 4,100.

Mr. RABAUT. What will be the effect of the Buford project on these dams?

General CHORPENING. The effect of Buford will be that at Bartlett's Ferry it should increase the kilowatt capacity 7,000; at Goat Rock it should increase it 8,000; and at North Highlands, 1,000.

Mr. RABAUT. It will firm the private power facilities then?

General CHORPENING. Yes, sir.

Mr. DAVIS. Last year, General, we were told that about 80 percent of the justification for this project was power. That aspect of it is not very strongly presented in the written justifications here. That is one thing I would like you to comment on. Secondly, last year we had considerable discussion about possible local contribution in view of the primary interest of the city of Atlanta in obtaining a more stable water supply as a result of this construction. Has any further discussion been had, with respect to a contribution by the city of Atlanta, or have you revised your opinions with respect to the proportion of the benefits that you allocate to power?

General CHORPENING. In answer to the first part of your question, I believe my statement of our present estimated annual benefits from the entire system, as I recall it, was something over \$7,000,000 annually for power, and about \$1,500,000 for navigation as an indication of the relative benefit of power as against navigation in the system, and, of course, that applies to this project. Where we install 86,000 kilowatts of power we will get considerable revenue from that. The navigation benefits are also there, but they are not as great as are the power benefits.

Now, on the second part of your question as to the benefits accruing to the city of Atlanta, we are providing no storage in the reservoir being built just to provide a stable water supply or stable water flow past the city of Atlanta. There is no cost that the Federal Government is putting in that is particularly to provide a more stable flow of water past Atlanta. The water goes by Atlanta now, and it goes by sometimes in a big flood, and sometimes the river gets very low. The operation of the dam will smooth out that flow. I know of no way to require the city of Atlanta to contribute to that, under any present laws, and I do not believe that in our computation of benefits any credit was taken for the benefit that might accrue to the city of Atlanta due to that smoothing out of the flow there.

LAND ACQUISITION

Mr. DAVIS. The land acquisition, apparently, is progressing rather slowly. Is there any particular problem in that respect?

General CHORPENING. No, sir. As of the 30th of June of this year the acquisition of land will be 4 percent completed. We have just started this project and, as a usual thing, our policy, unless there are other compelling conditions, is to only procure real estate in step with the construction. We do not want to dispossess people of their land or spend the Government's money for land until the time that we require it for the project. The entire project at the end of the fiscal year 1952 will be 8 percent complete. Of course, quite a little of that percentage represents engineering design, so 4 percent on real estate is not unrealistic in those circumstances.

Mr. DAVIS. Is your land-cost estimate a comparatively firm figure?

General CHORPENING. That is the best estimate we have at this time. With land, like everything else, it may have some variations up and down, but it is as close to the price that we will have to pay as we can reasonably make it at this time. We do not start dickering with the individual landowners, as a general thing, until we are at the point where we are really going to do some buying, and you can see why we would not do that.

Mr. FORD. According to the justifications, General, the closure date is September 1955, and the first power unit, with a capacity of 40,000 kilowatts, is to be placed on the line in December 1956. Could you give us an estimate of the proposed appropriations between now and the completion of this project?

Mr. BOUSQUET. Colonel Paulsen can furnish that.

Colonel PAULSEN. \$12,800,000 in 1954; \$11,565,000 in 1955; \$6,426,000 in 1956; and \$4,061,000 in 1957.

Mr. FORD. According to the justifications, the requested amount this year is \$3,000,000 even, is that correct?

General CHORPENING. Yes, sir.

AMOUNT REQUESTED OF BUREAU OF THE BUDGET

Mr. FORD. What did the corps request of the budget for this particular project?

General CHORPENING. \$8,500,000.

Mr. FORD. \$8,500,000?

General CHORPENING. Yes, sir.

Mr. BOUSQUET. I can give you the exact figures, sir, if you wish them. We had \$3,000,000 within the ceiling, and \$5,523,000 over the ceiling. That would have put power on the line a year earlier.

Mr. FORD. The requested appropriation would have put power on the line 1 year earlier, assuming your other appropriations would have followed in normal course?

Mr. BOUSQUET. Yes, sir; that is correct.

Mr. FORD. Has this project been certified by the President as essential to national defense?

Mr. BOUSQUET. No, sir; certification was not required for this project.

Mr. FORD. It was under construction at the time?

Mr. BOUSQUET. Yes, sir; it was under construction prior to 1951.

Mr. FORD. Did I understand you to say that one of the other projects in the over-all project had been recently so certified?

General CHORPENING. The upper Columbia was certified for planning. Under the requirements of the conference report on the appropriation bill last year the President had to certify any project for which planning funds were to be allocated in fiscal year 1952. That certification of the upper Columbia Dam was made on the 5th of January 1952 by the President.

Mr. FORD. The upper Columbia has how much power?

Colonel PAULES. 65,000 initially, or 130,000 ultimately.

Mr. FORD. It is Fort Benning which has no power?

General CHORPENING. Yes, sir; that is correct.

Mr. FORD. According to the testimony last year Buford is approximately 80 percent power.

General CHORPENING. Buford will have 86,000 kilowatts installed.

Mr. FORD. And approximately 80 percent of the benefit will be for power?

General CHORPENING. For power; yes, sir.

MISSISSIPPI RIVER BETWEEN OHIO AND MISSOURI RIVERS; CHAIN OF ROCKS CANAL

Mr. RABAUT. The next project is the Mississippi River between the Ohio and the Missouri Rivers, Chain of Rocks Canal, Ill.

This is a Federal project with a total estimated Federal cost of \$39,825,000. The allotments to date have been \$38,528,000. The appropriation for 1952 was \$5,000,000, and the tentative request for the fiscal year 1953 is \$1,297,000.

The project will be 97 percent completed as of the close of fiscal 1952, and the money requested will complete it.

Will you describe your progress during the past year.

General CHORPENING. The progress has been satisfactory on this project. The funds required will complete it and we can place this into operation, which will eliminate what has always been a very serious bottleneck to traffic on the Mississippi River. The money this year will be expended on the completion of the canal and the levees.

Mr. KERR. Then you think the \$1,297,000 requested will complete the job?

General CHORPENING. Yes, sir.

Mr. FORD. This is the project we saw from the air on the trip the committee took?

General CHORPENING. Yes, sir.

Mr. FORD. Bypassing the Chain of Rocks?

General CHORPENING. The Rapids of the Chain of Rocks has always been a very difficult reach in the Mississippi River. It is opposite St. Louis, on the left or east bank of the Mississippi River.

Mr. FORD. Has there been any revision in the initial cost estimate on this?

General CHORPENING. The estimate is the same as it was last year.

MISSISSIPPI RIVER BETWEEN MISSOURI RIVER AND MINNEAPOLIS, MINN.

Mr. RABAUT. The next project is one on the Mississippi River between Missouri River and Minneapolis, Minn., excluding St. Anthony Falls and lock 19.

Attachment 6

71.3 Congress

**CIVIL FUNCTIONS,
DEPARTMENT OF THE ARMY
APPROPRIATIONS FOR 1954**

**HEARINGS
BEFORE THE
SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES
EIGHTY-THIRD CONGRESS
FIRST SESSION**

SUBCOMMITTEE ON CIVIL FUNCTIONS AND MILITARY CONSTRUCTION

GLENN R. DAVIS, Wisconsin, *Chairman*

T. MILLET RAND, New Jersey	CLARENCE CANNON, Missouri
ELFORD A. CEDERBERG, Michigan	LOUIS C. RABAUT, Michigan
JOHN TAHER, New York	JOHN J. RILEY, South Carolina

FRANK SANDERS, *Executive Secretary to Subcommittee*

PART 1

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Mr. RILEY. The first recommendation that was made to change from Columbia to Fort Gaines was in the interest of economy?

General CHORPENING. And better engineering.

Mr. RILEY. Better engineering conditions?

General CHORPENING. Yes.

BUFORD DAM, GA.

Buford Dam, Ga.

Date	Unobligated balance	Unexpended balance
June 30, 1952	—222,000	222,000
Dec. 31, 1952	2,150,322	2,352,000
June 30, 1953 (estimated)		

Statement of average annual benefits

For the Apalachicola, Chattahoochee, and Flint Rivers improvement, of which Buford Dam is an integral part:

Navigation: Provision of a transportation facility for low-cost water shipments with transportation savings estimated at	\$1,490,000
Flood control: Furnish protection from devastating floods in the Chattahoochee River Valley. Annual flood protection estimated at	163,000
Power: Average values used for capacity and energy in the Apalachicola, Chattahoochee, and Flint Rivers Basin are \$23.31 per kilowatt of capacity and 2.78 mills per kilowatt-hour of energy. The average annual power benefits are estimated at	8,600,000
Other: Public use	50,000

Total annual benefits (Apalachicola, Chattahoochee, and Flint Rivers) 10,303,000

Average annual charges

Apalachicola, Chattahoochee and Flint Rivers, \$8,378,000.

Data on continuing contracts

Description of work	Total cost estimated
1. Continuing contracts in force:	
(a) Sluice gates and hoist	\$120,000
(b) Sluice and intake tunnel, penstock	612,000
(c) Intake gates, hoists, etc.	355,000
(d) Turbines, for units 1 and 2	1,534,000
(e) Turbines, for unit 3	262,000
(f) Generators, for units 1, 2, and 3	2,564,000
2. Proposed in fiscal year 1953 but not yet in force	None
3. Proposed in fiscal year 1954:	
(a) Relocations (roads)	8,922,400
(b) Relocations, power, telephone and transmission lines	1,144,100
(c) Dam, nonoverflow section	3,270,000
(d) Intake structure	3,101,000

Mr. DAVIS. The next is Buford Dam, in Georgia, on the same river as the Jim Woodruff, with an estimated total cost of \$41,013,000. The amount requested for the fiscal year 1954 is \$8,500,000 which will bring the project to 35.8 percent of completion.

I believe you told us that this project had a benefit-to-cost ratio of 1.24 to 1?

Colonel PAULES. Yes, sir.

Mr. DAVIS. What is the status of this project at the present time and how do you contemplate using the \$8.5 million?

Colonel PAULES. The funds made available to the project to date total \$7.5 million—includes a loan of \$1,370,000—and the project will be almost 20 percent completed at the end of this fiscal year. There is a continuing contract underway, and we will continue progressively on this project to meet the completion date now scheduled for the first unit of power in December 1956.

The last unit would be on the line on June 1957. The project has a total capacity of some 2 million acre-feet for flood control and power, and incidentally would supply additional water downstream for the benefit of the municipalities along the river, as far as Atlanta, and would benefit downstream power developments of the Georgia Power Co.

CONTRIBUTION TO COST OF PROJECT BY ATLANTA

Mr. DAVIS. A great deal of benefit, perhaps not dollarwise, but practically speaking, results from assuring to Atlanta of a continuous and plentiful water supply. To what extent is Atlanta, and the Atlanta community, contributing to the cost of this project?

Colonel PAULES. I believe we discussed that in the hearings last year in considerable detail, sir.

General CHORPENING. Yes.

Colonel PAULES. While the city of Atlanta is not contributing to this, they get benefits from it, incidentally, as the result of the controlled release of floodwaters, and as the water is released through the powerplant.

Mr. DAVIS. Is any part of this project made more expensive by reason of the water benefit to the city of Atlanta?

General CHORPENING. No, sir.

Mr. DAVIS. Will the city of Atlanta be expected to pay for some of the water that will be made available to them as the result of this project?

General CHORPENING. No; there would be no legal way to collect payment from the city of Atlanta, since, as was just stated, there is no additional cost being included for the construction of this project to provide the more uniform flow of water which will pass the city of Atlanta. In other words, the building of the project, with its power production and flood control and navigation benefits will not make available any more water than is now going past Atlanta. It is only going to make it flow by at a more uniform rate.

II. CONSTRUCTION OF A COORDINATED SERIES OF PROJECTS

Mr. DAVIS. If you were starting out to construct a coordinated series of projects on a river system would the one at the headwater and the one at the mouth of the river be the ones that would be constructed first?

General CHORPENING. I think that is not a question that can be answered with a flat "Yes" or "No," because in each instance there must be taken into consideration all of the benefits that will be gained. As was just stated here, the Buford Dam will have a benefit-cost ratio, standing by itself, of 1.24 to 1, without regard to the construction of the other dams. So it is not illogical in this instance to construct that reservoir first. As a matter of fact, the headwater reser-

voir gives control over the stream, and insures some of the flow of the water—another thing, navigation is involved, and you have no insured navigation project without the headwater construction.

I do not believe this involves any problem with reference to sediment at Buford, but in some places we are building headwater reservoirs earlier in order to provide against sediment.

I am just trying to be factual in answering your question.

Colonel PAULS. In addition, the analysis of the project at Buford itself indicates it does contribute in addition something in the order of 16,000 kilowatts of added dependable capacity to downstream powerplants, and an added average annual energy of some 38 million kilowatt-hours.

I might add, that the Federal Power Commission has authority, under the Federal Power Act, section 10, to make a determination of what actual charge is proper for the benefits received downstream and the amount the power plants should pay to the Federal Government as a result of this added benefit from the upstream regulation.

Mr. DAVIS. I understand that information has previously been supplied in response to another project.

General CHORPENING. Yes, sir.

Mr. DAVIS. Has consideration been given, inasmuch as this project is not very far along, to putting it on a standby basis for the time being?

General CHORPENING. No sir; we have considered that inasmuch as the project has been reasonably started, that it is a rather well-justified project, and that when we were here a year or two ago there did seem to be a difference of opinion in the Congress that afterward seemed to indicate we should proceed. We continued with the work.

Colonel PAULS. I might point out that at the end of this fiscal year we will have no unobligated and no unexpended balances in this fund. We will be about 20 percent complete, and we will have an investment in the project of something in the order of \$7.5 million; which could produce nothing until the project is brought to completion.

STANDBY BASIS OF PROJECT

Mr. DAVIS. What would be the practical situation with regard to these completed facilities? Would there be any unusual deterioration to them, or would they continue to be usable if at some future time Congress should decide on the appropriation of money for the project?

General CHORPENING. They would be useful. There would, of course, have to be some maintenance work on them. We do have some earthen embankment, and as I recall, some revetment, or abutments at the dam which would require maintenance, and of course we have done some considerable amount of excavation in connection with the powerhouse and spillways.

Colonel PAULS. Tunnels and spillways. The turbines and generators are under contract, and there is a contract under way for power and sluice tunnels.

Mr. DAVIS. How much further will you have to go so that you would not have any open work that would deteriorate, in order to put it on a reasonably safe standby basis?

General CHORPENING. I think we would have to make some study of that, rather than to try to give an offhand answer, Mr. Davis.

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because it would require an analysis of such work as is now there, and of the contract situation, and we would have to try to balance that as between closing out the contracts and the savings that would result from continuing. I am sure you appreciate the problem is such that I could not give a satisfactory offhand answer.

Mr. DAVIS: Would you provide us with the best estimate of that situation you can for the record?

General CHORPENING: Yes.

(The matter referred to follows:)

COST OF SUSPENSION--BUREAU DATA

The estimate of funds required to suspend (cost of suspending) work on the Buford Dam and Reservoir project has been developed to reflect the minimum costs of suspension. The estimate is based on the best available information and contains no provisions for contingencies for unpredictable conditions. In the suspension of work at a project, it is considered necessary to continue some contracts in force in order to prevent deterioration of work already accomplished and to expend funds that are consistent with receiving no further appropriations for construction for an indefinite period. It is considered that the best interest of the Government would be served, due to advancement of work, by completing the following contracts and items of work: Contracts for excavation for forebay, tunnels, tailrace, and construction of saddle dikes 1 and 2 and access road; design of powerhouse; and mapping of the reservoir.

Suspension of the Buford project for an indefinite period of time will involve an added cost of at least \$441,000 initially. This suspension will require a fiscal year 1954 appropriation of \$666,000, and a continuing annual appropriation of \$11,500 to maintain work in place. The interest charges on work in place as of June 30, 1953, will represent an annual increased investment of \$171,000. It is estimated that the added Government costs for remobilization on resumption of work would be \$115,000.

General CHORPENING: I would like to make the point, in answering one phase of your question, that we could never put the project on a basis where there would be no maintenance. There will be some maintenance, as the months or the years go by, or when we reopen construction there will have to be repair of the embankment, and also it will involve remobilization.

DESIGN OF TURBINES AND GENERATORS

Mr. RILEY: Generally, are the turbines that would be installed of a standard design so that they can be modified to meet the local situation?

Colonel PAULES: All hydroelectric turbines and generators are designed specifically for the project and are not interchangeable with any other location unless there should happen to be some other project that has identical characteristics to it.

Mr. RILEY: In other words, the turbines and the generators that are being built for the Buford project will simply have to be set aside and stored unless you would be able to find some other project with the similar characteristics?

Colonel PAULES: If the contract were cancelled, it would then be necessary to scrap, probably, what work has been done, and start again at some future date. The time for delivery on these turbines and generators under contract is in the order of 3 years from the

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time the contract is awarded until they are actually installed in the project.

Mr. RIMBY. So that if you cancel this job, you would have to pay the manufacturer the percentage of the cost, would you not?

Colonel PAULES. Yes, sir.

CLARK HILL RESERVOIR, GA. AND S. C.

Date	Unobligated balance	Unexpended balance
June 30, 1952	\$2,125,125	\$2,000,000
Dec. 31, 1952	225,000	225,000
June 30, 1953 (estimated)	225,000	225,000

Statement of average annual benefits

The Clark Hill Reservoir is located about 20 miles above Augusta, Ga., on the Savannah River. Total benefits from the project are estimated at \$7,920,000 annually. The flood control benefit is largely to agricultural lands downstream from the dam. Benefits to navigation are expected by increasing the present nominal channel depth of 6 feet between Augusta and Savannah, Ga. to a navigable depth of 7 feet at all times. A breakdown of the benefits is as follows:

Flood control	\$104,000
Navigation	291,000
Power: Values used for power benefits are 22.50 per kilowatt for capacity and 3.2 mills per kilowatt-hour for energy	7,615,000
Total benefits	7,920,000

Average annual charges

Average annual charges are estimated at \$3,580,000.

Data on continuing contracts

Description of work	Total estimated contract savings
1. Continuing contracts in force:	
(a) Powerhouse construction, turbines and generators	\$18,329,000
(b) Switchgear	175,300
(c) Buswork	158,800
(d) Main transformer	430,700
(e) Metering equipment	250,000
2. Proposed in fiscal year 1953 but not yet in force	None
3. Proposed in fiscal year 1954	None

Mr. DAVIS. The next project to consider is Clark Hill Reservoir, Ga. and S. C., for which the total estimated Federal cost is \$76,800,000, a decrease of \$200,000 since the appropriation of last year.

The appropriation requested for the fiscal year 1954 is \$2,250,000 which would bring the project substantially to completion.

What is there that remains to be done on this project with the money requested in this fiscal year?

General CHORPENING. Before Colonel Paules proceeds to be responsive to that question, I would like to remark here that last year on this project we decreased the cost estimate \$1,400,000, and this year we decreased it \$200,000; which follows the general pattern as we come to the close of these projects. Not always, unfortunately, but that is the general pattern.

Colonel PAULES. This year we will continue work under contract for the generators and powerplant equipment and miscellaneous items to bring this plant to 96 percent of completion.

Attachment 7

J U.S. Congress
**CIVIL FUNCTIONS, DEPARTMENT OF THE
ARMY APPROPRIATIONS, 1955**

HEARINGS
BEFORE THE
SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE
EIGHTY-THIRD CONGRESS
SECOND SESSION
ON
H. R. 8367
MAKING APPROPRIATIONS FOR CIVIL FUNCTIONS
ADMINISTERED BY THE DEPARTMENT OF
THE ARMY FOR THE FISCAL YEAR
ENDING JUNE 30, 1955

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CIVIL FUNCTIONS—APPROPRIATIONS, 1955

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height—I believe it a 33-foot rise there at the Jim Woodruff Dam—it is inconceivable to me that that would not be enough water, including all that coming from the Flint and such as stored up from the Chattahoochee, and, by the way, will be impounded 55 miles back upstream, to keep up the channel in the Apalachicola below, which, by the way, has been used by boat traffic for well over 100 years without any such work, but only with light-draft boats.

It is far the largest stream that we have in our State or area and I do hope that the navigation which has only been disturbed in recent years, since there has been so much erosion and siltation, will be made possible again on that great river just as quickly as it can be accomplished.

Senator CORDON. You will provide us the information with regard to this situation?

General CHORPENING. Yes, sir.

(The information referred to follows:)

STATUS OF CHANNEL IMPROVEMENT OF THE APALACHICOLA, CHATTAHOOCHEE,
AND FLINT RIVERS

The project in the Apalachicola River below Jim Woodruff Dam provides for a channel 9 feet deep with a minimum width of 100 feet to the Gulf Intracoastal Waterway at a total estimated cost of \$980,000. No dredging work has been done to accomplish the 9-foot depth. Funds in the amount of \$35,300 have been used in mapping the river. The controlling depth in the river is 4.5 feet. The commerce on this waterway during the calendar year 1952 was 87,677 tons.

STATUS OF APALACHICOLA BAY PROJECT

A project exists in Apalachicola Bay which provides for a channel 10 feet deep from the Gulf Intracoastal Waterway in Apalachicola Bay through West Pass, which is a pass between St. George and St. Vincent Islands to the Gulf of Mexico. This project was completed in 1927. The commerce using this West Pass Channel in 1952 was 16,210 tons.

Under present conditions, vessels traveling from the Jim Woodruff Dam site to the Gulf of Mexico would traverse the Apalachicola River Channel through the West Pass to the Gulf of Mexico.

A report, printed in House Document No. 557, 82d Congress, 2d session, is now being considered by the committee of the Congress in connection with an omnibus river and harbor and flood-control bill. The report recommends that a channel be dredged 10 feet deep and 100 feet wide across St. George Island, extending from deep water in Apalachicola Bay to deep water in the Gulf of Mexico, with twin jetties in the Gulf of Mexico, and the abandonment or deauthorization of the part of the existing project for Apalachicola Bay known as West Pass Channel, at such time as the new channel through St. George Island is provided.

Senator CORDON. What is the next one?

BURFORD DAM, GA.

Date	Unobligated balance	Unexpended balance
June 30, 1953.....	\$228,019	\$0
FISCAL YEAR 1954 APPROPRIATION, \$7,500,000		
June 30, 1953.....	\$4,348,025	\$48,377
June 30, 1954 (estimated).....	0	\$1,850,000

* Reflects borrow of \$1,010,000 from this project through Dec. 31, 1953.

Colonel WHIFFLE. The next project is the Buford Dam which has just been referred to as the uppermost of these series of four on the Chattahoochee-Flint-Apalachicola system.

Senator CONDON. Right quickly, so we know what we are looking at, what did you request?

Colonel WHIFFLE. We requested \$5.8 million. The project provides a considerable amount of flood control, but its main purpose is the output of power to the area. There will be a total of 86,000 kilowatts installed generating capacity and it will have a very considerable power benefit to privately owned dams downstream as well as the future Government dams at Jim Woodruff and Fort Gaines.

Senator CONDON. Let me ask you something there. You speak of this added benefit downstream to other generating units that are privately owned. Does the Government recoup anything from those?

Colonel WHIFFLE. Under the provisions of the Federal Power Act, sir, the Government, through the Federal Power Commission, can make a finding and recoup an equitable amount of those benefits. The word "equitable" is stated in the act. Such capture of benefits has been done in certain instances.

Senator CONDON. You have done it and you intend to do it here?

Colonel WHIFFLE. We presume the Federal Power Commission will do it, but that again is something outside the competence of the corps.

Senator CONDON. The Federal Power Commission does that?

Colonel WHIFFLE. Yes, so I cannot directly testify as to the intentions of the Federal Power Commission.

Senator ELLENDER. In planning your power here you are getting the entire amount that can be obtained?

Colonel WHIFFLE. Yes.

Senator ELLENDER. And the cost figure here includes the expenses of that?

Colonel WHIFFLE. Yes.

Senator ELLENDER. Will you give me for the record the same information I asked of the other; that is, how much is charged to navigation? Do not get it now. Get it for that project the same as you will get for the other?

Colonel WHIFFLE. All right, sir.

(The information referred to follows:)

Approximate cost distribution among project purposes

Total estimated first cost.....	\$41,081,000
Distribution:	
Flood control.....	4,207,000
Power.....	17,540,000
Navigation.....	
Irrigation.....	
Recreation.....	104,000

Senator ELLENDER. I would like to have that for each project, if you do not mind, as we go along.

Colonel WHIFFLE. All right, sir.

Senator ELLENDER. I will not ask you in the future so as to save wordage.

PROJECT BENEFITS

Colonel WHIPPLE. There are some additional benefits to this project—they have not been evaluated—that would increase the flow of water downstream which improves the water supply at Atlanta, and the project is unusually well situated for recreational use. The experience in the neighboring reservoir of Allatoona indicates that a beautiful lake will be formed in wooded country that is not much developed and will have, we feel, a tremendous interest to the people in Atlanta only 35 miles away from the very fine recreational opportunities that will be available.

Senator ELLENDELL. When you say this will improve the water supply at Atlanta, it does not mean that Atlanta is going to participate in the payment of any of these improvements?

Colonel WHIPPLE. We understand not, sir, from the history of the authorization. There are no additional costs for that reason. It is purely an incidental benefit on account of the power releases which does not require any storage to be devoted to that purpose.

Senator CONNOR. Let me ask you one other question there. You mention the recreational value resulting from the creation of the lake. When you acquire necessary areas for the reservoir do you acquire any additional acreage around the shore of the reservoir for the purpose of protecting the integrity of the water and the land?

Colonel WHIPPLE. At the present time we have changed our policy. I mentioned the Allatoona dam. Under the old policy we acquired most of the peninsulas that stick out into the lake. That land was then made available for public recreational use and for lease as cottage sites and club sites. I can testify from my own knowledge that there was tremendous interest from people around Atlanta to use those sites. Under the present land policy we may incidentally acquire land for those purposes, but we will not acquire any additional land especially for that purpose, so that presumably most of this development will be on privately owned rather than Government-owned land.

LEASES AND USE PERMITS

Senator CONNOR. Is there any considerable income to the Government from those use permits or leases?

Colonel WHIPPLE. No, sir, there is really no net income because of the money from the leases. Three-quarters of that money is returned to the States under existing law and the balance is taken up and practically balanced by administrative costs of the leases.

General CHORPENING. The amount countrywide runs to about a million and a quarter dollars from all of our projects, Mr. Chairman, and, as has been stated here, 75 percent of that returns to the States.

Senator ELLENDELL. What do you mean by that? Why is it returned to the States?

General CHORPENING. Under the law 75 percent of it is returned to the State.

Senator ELLENDELL. You mean the States lease them and get the money?

General CHORPENING. No, sir; we make the leases and the funds are collected and go into miscellaneous receipts of the Treasury, but then

70 STAT.]

PUBLIC LAW 841—JULY 30, 1956

725

Sec. 3. The commissioner may, prior to executing such quitclaim deeds, require that claimants quitclaim to the Territory any claim they may have in and to the roadways hereinabove described, and the easement hereinabove referred to.

Quitclaims to Territory.

Sec. 4. This Act shall take effect on and after the date of its approval. Approved July 30, 1956.

Effective date.

Public Law 840

CHAPTER 784

AN ACT

To amend the Bankruptcy Act with respect to the priority of debts owed by a bankrupt to workmen, servants, clerks, and certain salesmen.

July 30, 1956
(H. R. 256)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That clause (2) of subsection (a) of section 64 of the Bankruptcy Act (11 U. S. C., sec. 104 (a)) is amended to read as follows: "(2) wages and commissions, not to exceed \$600 to each claimant, which have been earned within three months before the date of the commencement of the proceeding, due to workmen, servants, clerks, or traveling or city salesmen on salary or commission basis, whole or part time, whether or not selling exclusively for the bankrupt; and for the purposes of this clause, the term 'traveling or city salesman' shall include all such salesmen, whether or not they are independent contractors selling the products or services of the bankrupt on a commission basis, with or without a drawing account or formal contract;".

Bankruptcy.
Priority of debts.
55 Stat. 574.

Sec. 2. The amendment made by the first section of this Act shall apply only with respect to proceedings commenced on or after the date of the enactment of this Act.

Approved July 30, 1956.

Public Law 841

CHAPTER 785

AN ACT

Relating to the use of storage space in the Buford Reservoir for the purpose of providing Gwinnett County, Georgia, a regulated water supply.

July 30, 1956
(H. R. 256)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Army is hereby authorized to contract with Gwinnett County, Georgia, upon such terms and for such period not to exceed fifty years as he may deem reasonable for the use of storage space in the Buford Reservoir for the purpose of providing said county a regulated water supply in an amount not to exceed eleven thousand two hundred acre-feet of water annually, and is authorized to grant to Gwinnett County, at no cost, easement over Government lands at Buford Reservoir for the sole purpose of constructing, repairing, and maintaining necessary pipelines and pumping station to remove such water from said reservoir, and the project for Buford Dam authorized by the Act, entitled "An Act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes," being Public Law 523, Seventy-ninth Congress, second session, approved July 24, 1946, is hereby modified accordingly: *Provided*, That all moneys received shall be deposited in the Treasury of the United States as miscellaneous receipts: *Provided further*, That nothing herein contained shall affect water rights under State law.

Gwinnett County.
Ga.
Storage in Buford
Reservoir.

50 Stat. 534.

Approved July 30, 1956.



DEPARTMENT OF THE ARMY
MOBILE DISTRICT CORPS OF ENGINEERS
 P.O. BOX 2283
 MOBILE, ALABAMA 36628-0001
 November 7, 2007

REPLY TO
 ATTENTION OF

District Engineer

Glenn M. Page, P.E.
 General Manager
 Cobb County Marietta Water Authority
 1660 Barnes Mill Road
 Marietta, Georgia 30067

Dear Mr. Page:

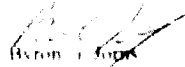
As you are aware, under the authority of the Water Supply Act of 1958, the U.S. Army Corps of Engineers (Corps) can make water supply storage available for municipal and industrial (M&I) purposes. Although this legislation authorizes the Corps to enter into contracts with states and local interests for storage space at Corps reservoirs for M&I use, it does not authorize the Corps to sell or allocate quantities of water. Instead, the allocation and administration of water and water rights is governed by the states under various state permitting regimes. On October 10, 1963, your agency, the Cobb County Marietta Water Authority (CCMWA), entered into a storage contract with the Corps which conveyed to CCMWA the right to utilize storage space at Lake Allatoona to store water granted to CCMWA by the State of Georgia.

Recently, questions have been raised about whether CCMWA has made more use of storage space than is provided in the storage contract. Based on information you have provided, calculations have been made to determine the amount of storage used by CCMWA. Our preliminary calculations indicate that CCMWA has substantially exceeded the storage allocation provided in the water supply storage contract. *

In the interest of insuring the accuracy of these calculations, I am providing the enclosed spreadsheet so that you may review our calculations. I respectfully request that you provide within ten days of the receipt of this letter any comments or additional information you would like me to consider regarding this matter, including any information concerning your ability to meet your water supply needs from drawing on other sources. In determining our future course of action, I will carefully consider any additional information you provide.

I am also sharing this information with other affected stakeholders for their comment within the same ten day period. I appreciate the efforts you and the other water users within the State of Georgia have taken and look forward to your continued cooperation as we work together during this time of severe drought. If you have any questions, please feel free to contact me.

Sincerely,



Byron J. Jones
Colonel, Corps of Engineers
District Commander

Explanation of Contract Storage Spreadsheet

The spreadsheet uses water withdrawal information provided by the users. Based on the withdrawals, calculations are made to determine remaining storage with and without credit for returns. The spreadsheet uses the calculation premise of $\text{Change in Storage} = \text{Inflow} - \text{Discharge}$.

There are three users tracked in the spreadsheet for Allatoona: CCMWA, the City of Cartersville, and the Corps. Each account is tracked by $\text{User Change in Storage} = \text{Prorated Inflow} - \text{Withdrawal}$. The inflow is prorated based on the user storage percentage: Cartersville = 2.24 %, CCMWA = 4.62 % with the Corps receiving the remainder. When a Users storage account is full, their prorated inflow is then distributed to the other users.

The sheets "Storage_Accounting" track remaining storage for each account without considering returns to the lake and "Storage_Accounting wRet" tracks the storage with full returns.

Please note that this information is preliminary and may be revised based on responses to policy questions that have been posed to HQUSACE.

[voluminous spreadsheets not attached]

Congress of the United States
Washington, DC 20515

May 13, 2013

The Honorable Bill Shuster
Chairman
House Committee on Transportation
and Infrastructure
2165 Rayburn House Office Building
Washington, D.C. 20515

The Honorable Nick J. Rahall, II
Ranking Member
House Committee on Transportation
and Infrastructure
2163 Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Shuster and Ranking Member Rahall:

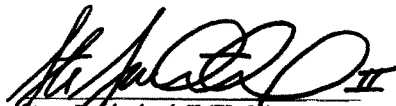
As the House Committee on Transportation and Infrastructure drafts a Water Resources Development Act (WRDA), we urge you to address an issue of tremendous economic and environmental consequence to the State of Florida.


We believe that the Army Corps of Engineers is overstepping its authority by reallocating water from Georgia's Lake Lanier to Atlanta's metropolitan area without proper Congressional oversight. By diverting this limited resource, the Corps is reducing the freshwater flow down the Apalachicola-Chattahoochee-Flint (ACF) River System and, thereby, preventing an adequate water supply from reaching the Apalachicola River Basin and Bay in the Florida panhandle.

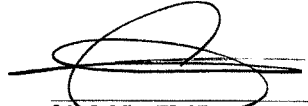
Historically, Apalachicola Bay has provided more than 90 percent of Florida's oysters harvest and nearly 10 percent of the nation's oyster supply, serving as a major economic driver for the state. The low flows from the ACF system have decimated the local oyster fishery and, by extension, Apalachicola and the surrounding North Florida region that depend upon the industry's success.


We are hopeful that you will work closely with our delegation, specifically the six Florida members of the Committee on Transportation and Infrastructure, to ensure that a legislative solution is included in the Water Resources Development Act. We thank you for your consideration and look forward to working with you on this critically important issue for our state and region.

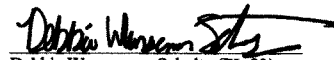
Sincerely,

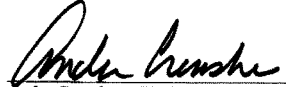

Steve Southerland, II (FL-02)
Member of Congress

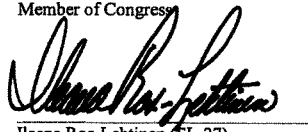

Corrine Brown (FL-05)
Member of Congress

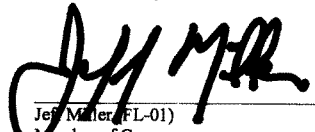

 John L. Mica (FL-07)
 Member of Congress



 C. W. Bill Young (FL-17)
 Member of Congress



 Debbie Wasserman Schultz (FL-23)
 Member of Congress



 Ander Crenshaw (FL-04)
 Member of Congress

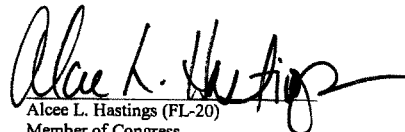

 Ileana Ros-Lehtinen (FL-27)
 Member of Congress



 Jeff Miller (FL-01)
 Member of Congress

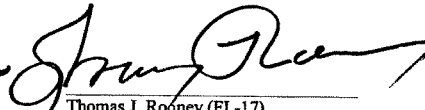

 Gus M. Bilirakis (FL-12)
 Member of Congress



 Mario Diaz-Balart (FL-25)
 Member of Congress

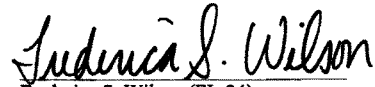

 Vern Buchanan (FL-16)
 Member of Congress

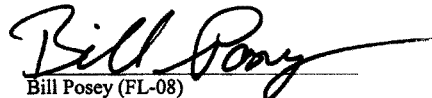

 Alcee L. Hastings (FL-20)
 Member of Congress



 Dennis A. Ross (FL-15)
 Member of Congress


 Thomas J. Rooney (FL-17)
 Member of Congress



Kathy Castor (FL-14)
Member of Congress

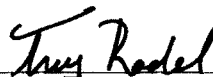

Frederica S. Wilson (FL-24)
Member of Congress

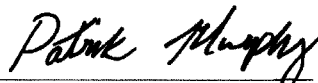

Bill Posey (FL-08)
Member of Congress



Richard B. Nugent (FL-11)
Member of Congress



Theodore E. Deutch (FL-21)
Member of Congress

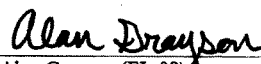

Ted S. Yoho (FL-02)
Member of Congress

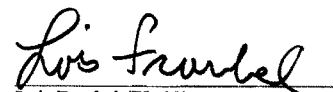

Trey Radel (FL-19)
Member of Congress


Patrick Murphy (FL-18)
Member of Congress


Ron DeSantis (FL-06)
Member of Congress


Joe Garcia (FL-26)
Member of Congress


Alan Grayson (FL-09)
Member of Congress


Lois Frankel (FL-22)
Member of Congress

Congress of the United States
Washington, DC 20515

June 3, 2013

Chairman Bill Shuster
2165 Rayburn House Office Building
Washington, D.C. 20515

Ranking Member Nick J. Rahall, II
2163 Rayburn House Office Building
Washington, D.C. 20515

Re: Water Resources Development Act of 2013

Dear Chairman Shuster and Ranking Member Rahall:


We are aware that your committee is working on a draft Water Resources Development Act (WRDA), and we write to urge you to address an issue in the bill that is of great importance to the State of Alabama.


Many communities in Alabama are downstream from reservoirs in the Atlanta area that are operated by the Corps of Engineers. These projects were constructed with federal taxpayer dollars to support the interests of hydropower generation, navigation support, and flood control. The operation of the projects for those purposes generates substantial river flows that are vital to Alabama's environment and economy.

The Corps of Engineers has unilaterally changed the operation of those reservoirs to support Atlanta's water-supply demands and, in so doing, has substantially diminished river flows in Alabama. Although the Water Supply Act of 1958 allows some use of federal reservoirs to meet local water-supply needs, Congress reserved to itself the authority to approve significant water-supply uses at such reservoirs. The Corps of Engineers, however, has interpreted the Water Supply Act to give it almost complete discretion to use federal reservoirs to support local water supply.

We urge your committee to include language in the WRDA bill that sets clear numerical thresholds on the limits of the Corps' authority to use federal reservoirs for local water supply without congressional approval. Because federal reservoirs are built to support important federal purposes with federal tax dollars, we believe it is imperative this legislation include provisions restating that only Congress has the authority to make significant alterations of such reservoirs to serve the local purpose of water supply.

Sincerely,

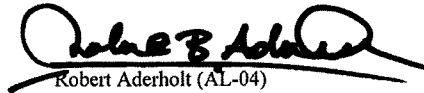

Mike Rogers (AL-01)
Member of Congress


Jo Bonner (AL-01)
Member of Congress

Chairman Bill Shuster and Ranking Member Nick J. Rahall, II
June 3, 2013
Page Two



Mo Brooks (AL-05)
Member of Congress



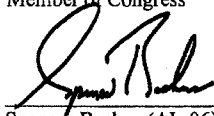
Robert Aderholt (AL-04)
Member of Congress



Martha Roby (AL-02)
Member of Congress



Terri Sewell (AL-07)
Member of Congress



Spencer Bachus (AL-06)
Member of Congress

cc: Governor Robert Bentley

BARBARA BOXER, CALIFORNIA, CHAIRMAN
 MAX BAUCUS, MONTANA
 THOMAS R. CARPER, DELAWARE
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 DWELDON WHITTEHOUSE, RHODE ISLAND
 TOM HALL, NEW MEXICO
 JEFF MERKLEY, OREGON
 CHRISTOPHER GILLESPIE, NEW YORK
 DAVID VITTER, LOUISIANA
 JAMES M. INHOFE, OKLAHOMA
 JOHN BARRASSO, WYOMING
 JEFF SESSIONS, ALABAMA
 MIKE CRAPO, IDAHO
 ROGER WIEKER, MISSISSIPPI
 JOHN BOOZMAN, ARKANSAS
 DEB FISCHER, NEBRASKA

BETINA FORBES, MAJORITY STAFF DIRECTOR
 ZIA RAO, REPUBLICAN STAFF DIRECTOR

United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
 WASHINGTON, DC 20510-6175

May 15, 2013

The Honorable Jo-Ellen Darcy
 Assistant Secretary of the Army for Civil Works
 U.S. Army Corps of Engineers
 108 Army Pentagon
 Washington, D.C. 20310-0108

Dear Assistant Secretary Darcy:

We are writing regarding recent efforts in our committee to address concerns with the Water Supply Act of 1958 (WSA), 43 U.S.C. 390b. These concerns have arisen most prominently with respect to the U.S. Army Corps of Engineers' management of federal reservoirs in the Apalachicola-Chattahoochee-Flint (ACF) River System and the Alabama-Coosa-Tallapoosa (ACT) River System, where the States of Alabama, Georgia, and Florida have been engaged in a decades-long conflict over the use of water resources in their region.

As committee leadership with jurisdiction over these matters, we believe in the principle that water resources conflicts of this nature should be resolved through negotiated interstate water compacts whenever possible. State-level agreements are better able to take into consideration the concerns of all affected States and stakeholders, including impacts to other authorized uses of the projects (such as hydropower or navigation), water supply for communities and major cities in the region, fisheries management issues, water quality, freshwater flows to communities, rivers, lakes, estuaries, and bays located downstream of projects, agricultural uses, economic development, and other appropriate concerns.

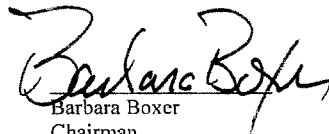
As you are aware, the Senate Committee on Environment and Public Works unanimously reported the Water Resources Development Act of 2013 (S. 601), as amended, on March 20, 2013. Section 2015 of this bill, as reported by our committee, sought to clarify the authority of the Army Corps under Section 301 of the WSA in at least two respects. First, Section 2015 would have amended the WSA to reiterate that federal agencies must consider new WSA allocations "cumulatively" with all previous allocations at the reservoir. This was intended to make clear that the Army Corps cannot circumvent the intent of the WSA through gradual allocations. Second, Section 2015, as reported, sought to amend the WSA by setting a more specific threshold when congressional approval is required. We worked in good faith with our committee member, Senator Jeff Sessions of Alabama, to ensure that concerns he had expressed in committee, both last year and during the current Congress, were addressed.

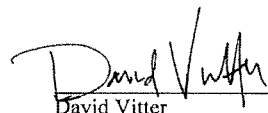
Today, the Senate passed the WRDA bill and, after significant discussions with several members of the Senate, we have reached an agreement to modify Section 2015. The new language for Section 2015 does not alter existing rights or obligations under law, but it does seek to make clear that the committee remains very concerned about the operation of ACF and ACT projects, and that absent action by the states to resolve these issues, the committee should consider appropriate legislation including any necessary clarifications to the Water Supply Act of 1958 or other law.

Accordingly, we strongly urge your personal and direct involvement in fostering efforts to enable the States of Alabama, Georgia, and Florida to reach an amicable and reasonable water compact as soon as possible. We believe that it is essential that the Army Corps not take actions that favor the position of any of the three States, but rather the Army Corps should serve as a neutral facilitator of a negotiated solution.

Thank you for your kind attention to these matters. Our committee will be following this issue closely.

Very truly yours,


Barbara Boxer
Chairman


David Vitter
Ranking Member

cc: Governor Nathan Deal, State of Georgia
Governor Robert Bentley, State of Alabama
Governor Rick Scott, State of Florida



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

JUL 18 2013

Honorable David Vitter
Committee on Environment and Public Works
United States Senate
456 Dirksen Senate Office Building
Washington, D.C. 20510-6175

Dear Senator Vitter:

This is in response to your letter dated May 15, 2013, cosigned with Senator Boxer regarding conflict over water resources in the Apalachicola-Chattahoochee-Flint (ACF) and Alabama-Coosa-Tallapoosa (ACT) River systems and Section 2015 of the Water Resources Development Act of 2013 (Section 601). I apologize for the delay in responding.

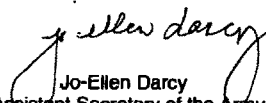
I appreciate and respect the committee leadership's view that water resources conflicts between states should be resolved, whenever possible, through negotiated interstate water compacts. For many years now, the Army has continuously advised the Governors of Alabama, Florida, and Georgia that it is ready and willing, within the limits of its legal authority, to adjust the operation of the U.S. Army Corps of Engineers projects in the ACF and ACT systems to accommodate any allocation of waters within those basins upon which the three states agree, and to provide technical assistance if requested by the states in reaching an agreement. However, the responsibility for negotiating such an agreement lies squarely with the states.

I can also assure you that the current water control manual update processes for the ACF and ACT systems are addressing the congressionally-authorized purposes of the federal reservoirs and applicable federal law in determining the most effective way to operate the systems in the future. The Corps has solicited and is considering comments from stakeholders and the general public, including all three states, as part of the ongoing manual update process.

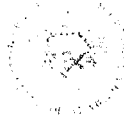
The Army stands ready to provide technical assistance to the states, if and when asked. An identical letter is being provided to Senator Boxer.

Thank you for your interest in the Army Civil Works Program.

Very truly yours,


Jo-Ellen Darcy
Assistant Secretary of the Army
(Civil Works)

OFFICE OF THE GOVERNOR

ROBERT BENTLEY
GOVERNORSTATE CAPITOL
MONTGOMERY, ALABAMA 36130(334) 242-7100
FAX: (334) 242-3282

STATE OF ALABAMA

July 15, 2013

Honorable Barbara Boxer
112 Hart Senate Office Building
Washington, D.C. 20510Honorable David Vitter
516 Hart Senate Office Building
Washington, D.C. 20510

Dear Chairman Boxer and Senator Vitter:

Thank you for sending me a copy of your letter to the Assistant Secretary of the Army for Civil Works dated May 15, 2013. I share your committee's concern about the Corps' disregard of its obligations under the Water Supply Act of 1958 in its management of federal reservoirs in the Alabama-Coosa-Tallapoosa (ACT) River Basin and the Apalachicola-Chattahoochee-Flint (ACF) River Basin.

Congress, in the Water Supply Act, reserved the authority to approve significant reallocations of federal reservoirs for local water-supply purposes. Nonetheless, the Corps has failed to obtain Congressional approval for the major operational changes it has made at Lake Lanier and Lake Allatoona in Georgia to meet Atlanta's water-supply demands.

The Corps' illegal actions at those two reservoirs have significant adverse consequences for the State of Alabama and its citizens. I have attached a report that Alabama's Office of Water Resources prepared showing how the increasing water-supply uses of the two reservoirs has resulted in lower flows for downstream communities. The report also highlights some of the resulting negative consequences to Alabama.

Like you, I believe that a negotiated solution among the three States is the best way to solve the longstanding dispute concerning the ACT and ACF Basins. But the Corps' adherence to the Water Supply Act is essential if we are going to make any progress in reaching a settlement.

Sincerely,

 A handwritten signature of Robert Bentley in black ink.

Robert Bentley
Governor

c: Senator Richard Shelby
Senator Jeff Sessions

Analysis of Demands, Flows and Operations Upstream from Alabama

Alabama-Coosa-Tallapoosa & Apalachicola-Chattahoochee-Flint River Basins



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Office of Water Resources

ADECA's Office of Water Resources (OWR) administers programs for river basin management, river assessment, water supply assistance, water conservation, flood mapping, the National Flood Insurance Program and water resources development. Further, OWR serves as the state liaison with federal agencies on major water resources related projects and conducts any special studies on instream flow needs as well as administering environmental education and outreach programs to increase awareness of Alabama's water resources. OWR's mission states that the office plans, coordinates, develops and manages Alabama's water resources, both ground and surface water, in a manner that is in the best interest of the state. This includes recommending policies and legislation, conducting technical studies, implementing and participating in programs and projects and actively representing Alabama's intra and interstate water resource interests.

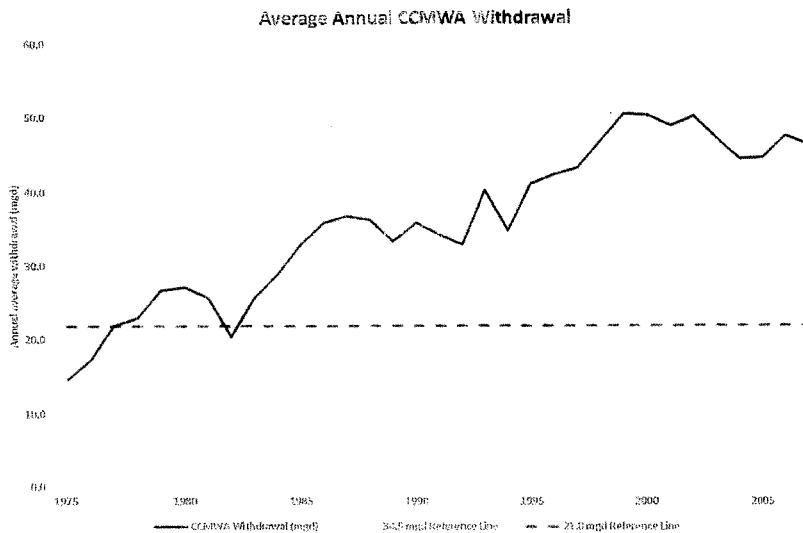
Analysis

OWR reviewed available data and information to create this analysis focused on how the activities of the Corps of Engineers and other Georgia governmental entities in the Apalachicola-Chattahoochee-Flint (ACF) River Basin and the Alabama-Coosa-Tallapoosa (ACT) River Basin have impacted Alabama's water resources. This analysis addresses how the upstream water resources have changed over time in a way that is negative to Alabama. This analysis is meant to complement previous work performed by this office such as the comments submitted regarding the draft environmental impact statement associated with the Corps' proposed ACT manual. This analysis address streamflows, demands and operations in both the ACT and ACF River Basins. Specifically in the ACT River Basin, OWR analyzed (1) the Cobb County Marietta Water Authority (CCMWA) withdrawals and storage accounting calculations; (2) the long term trends of the CCMWA withdrawals and streamflows at Allatoona and Rome; and (3) the Corps use of storage augmentation during droughts at Allatoona. Similar to the ACT analysis. OWR's ACF analysis includes (1) the long term trends of the Gwinnett County withdrawals, streamflows at Buford and Atlanta and (2) the Corps use of storage augmentation during droughts at Lake Lanier. Finally, water-quality impacts as a result of reduced streamflows in the ACT and ACF were also evaluated.

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CCMWA Growing Withdrawals

The following graph shows the average annual Cobb County Marietta Water Authority (CCMWA) withdrawals from Lake Allatoona. CCMWA has a storage allocation contract for 13,140 acre-feet of Lake Allatoona. 13,140 acre-feet represents 4.62% of Lake Allatoona's conservation storage pool. When the contract was originally written, 13,140 acre-feet was expected to yield 34.5 mgd. The Corps allowed CCMWA to exceed 34.5 mgd since the mid 1980's. The expected yield of CCMWA's 13,140 acre-feet is directly related to the critical yield of Lake Allatoona. Since there have been more severe droughts at Lake Allatoona since the 1960's, the yield of Lake Allatoona (and the expected yield of CCMWA's 13,140 acre-feet) has been reduced over time. The current yield of Lake Allatoona as calculated by the Corps is 729 cfs. Since, CCMWA's expected yield is 4.62% of the critical yield, the current expected yield of CCMWA's 13,140 acre-feet is 21.8 mgd. For reference, both the 34.5 mgd and 21.8 mgd lines are shown on the graph below. CCMWA's average annual withdrawals have been exceeding 21.8 mgd since the early 1980's.

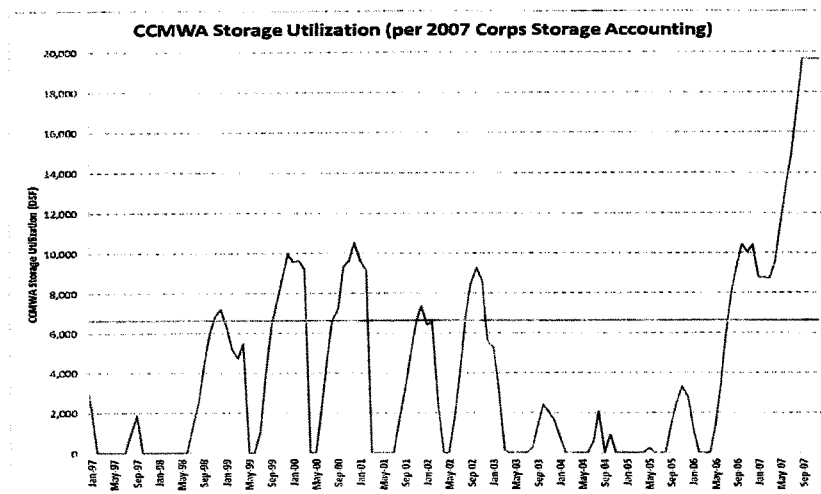


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CCMWA Storage Accounting

In late 2007, OWR received a storage accounting spreadsheet used by the Corps of Engineers to track CCMWA's utilization of its allocated 13,140 acre-feet (13,140 acre-feet is equal to 6,625 DSF).

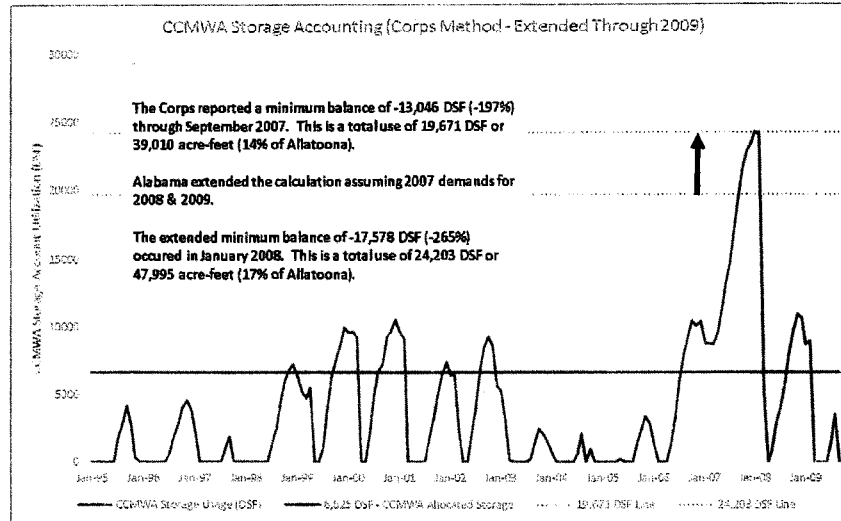
The storage accounting spreadsheet provided by the Corps included monthly calculations through September 2007. The following graph is a plot of the storage utilization data contained in the storage accounting spreadsheet.



The blue line in the above graph shows the CCMWA storage utilization as calculated by the Corps. The red reference line shows the CCMWA allocated storage (13,140 acre-feet or 6,625 DSF). The Corps has allowed CCMWA to exceed its allocated storage amount repeatedly beginning in the late 1990's. The Corps' spreadsheet shows a CCMWA storage utilization of 19,671 DSF (approximately 39,000 acre-feet) in September of 2007. 19,671 DSF storage utilization was comprised of the 6,625 DSF allocated storage and a 13,046 DSF overutilization of storage.

The Corps has yet to provide a set of storage utilization calculations updated after September 2007. Since the drought was not over when the Corps stopped its storage accounting calculations, OWR extended the calculations contained in the Corps spreadsheet through 2009 to get a complete picture of the CCMWA storage utilization. OWR had access to CCMWA withdrawal data through the end of 2007 and simply assumed that the 2008 and 2009 withdrawals were equal to the withdrawals in 2007. The graph of the extended storage utilization is shown below.

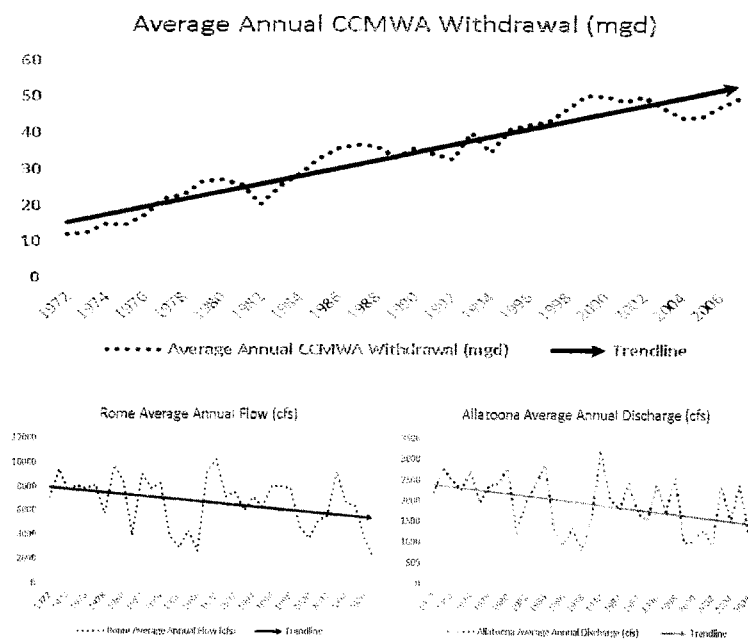
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ACT Long Term Demand and Flow Trend

Thirty-six years of data were analyzed to determine the long-term trend of water supply withdrawals and flows. Specifically, the average annual data for the 1972 – 2007 period was plotted for the following three parameters: (1) Cobb County Marietta Water Authority (CCMWA) withdrawals, (2) Allatoona discharges and (3) Rome flow. A trend line (using Microsoft Excel) was then applied to the data. The 1972 – 2007 period was selected since that was the period of time that OWR had withdrawal data for CCMWA.



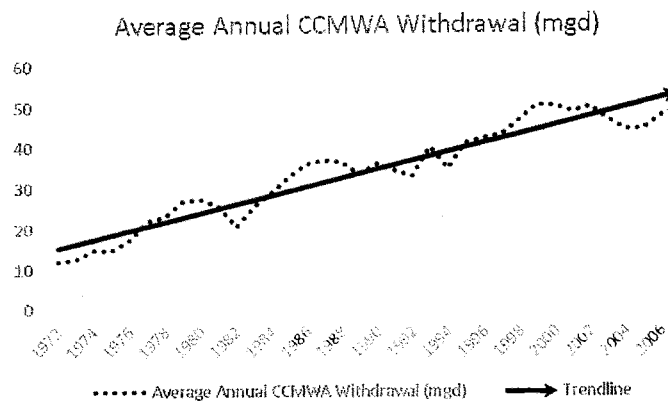
The above three graphs show that where the CCMWA withdrawals have steadily increased over time, the Allatoona discharges and Rome flow have steadily decreased over time. The data used to create the plots is contained in Exhibit A.

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Corps' Declining Use of Allatoona Storage to Benefit Downstream Flows

OWR analyzed the Corps' operations at Lake Allatoona and how those operations changed over the same time that the CCMWA withdrawals were increasing. Using the same 1972 – 2007 period (period when OWR had access to CCMWA withdrawal data), OWR identified the four significant drought periods. OWR focused on the drought period operations since that is the time when the Corps' releases have the most impact on the flows into Alabama. The drought periods analyzed, and highlighted in the following graph, were 1981, 1986-1988, 1999-2002, and 2007-2008.

The shaded area in the following graph shows the drought periods.



The following table shows the data from the analysis of the Corps' operations of Allatoona.

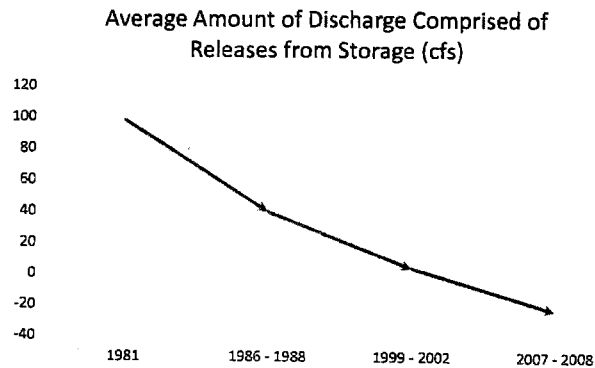
Drought Period (Water Years)	Average Inflow (cfs)	Average Discharge (cfs)	Average Amount of Discharge Comprised of Releases from Storage (cfs)	Percent of Discharge Coming from Storage (%)	End of Drought Period Elevation	Average CCMWA Withdrawal (mgd)
1981	1,128	1,226	98	8%	826.77	26
1986 - 1988	996	1,035	40	4%	829.45	36
1999 - 2002	1,084	1,088	4	0%	831.46	50
2007 - 2008	838	814	-24	-3%	834.40	47

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This table shows that as the CCMWA usage grew over time, the Corps' usage of Allatoona to augment downstream flows decreased over time. In fact, the 2007-2008 average release from storage was negative, indicating that the Corps actually stored water during this critical drought instead of using the project to augment downstream flows.

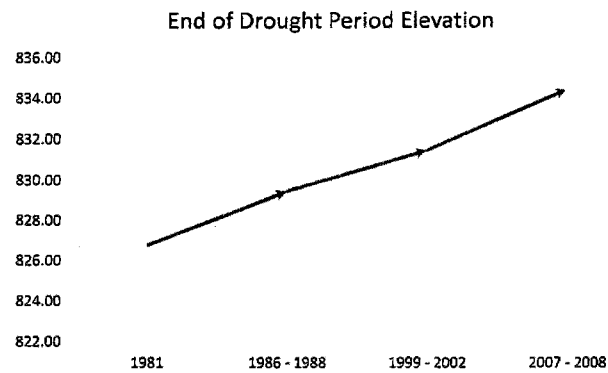
As the CCMWA demands increased, the Corps altered its operations and abandoned the fundamental common sense principal of reservoirs - store water during high flow times and release water when it is needed. In fact as the droughts progressed, the Corps used less of Allatoona's storage to augment downstream flows. In fact, as a result of the Corps' operations, the downstream interests would have actually been better off in the 2007-2008 drought if Allatoona didn't even exist. This is because during the 2007-2008 drought the Corps actually stored inflow instead of releasing it downstream.

The following are graphical depictions of the data from the above table.



The above graph shows that as the droughts progressed, the Corps stopped releasing any previously stored water to augment flows downstream. In fact, in the 2007-2008 drought on average the Corps released less water than it received as inflow.

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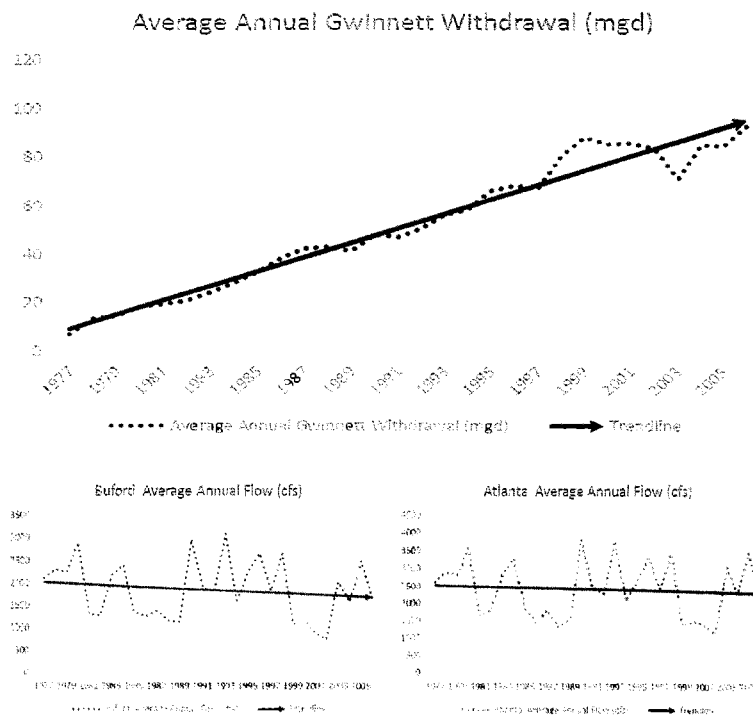


OWR plotted the elevation at Lake Allatoona at the end of the drought periods analyzed in the above table. This plot is shown above. This plot shows that as time progressed the Corps allowed CCMWA to withdraw more water than allowed by their contract, withheld more flow from downstream interests and maintained higher lake elevations to benefit recreation.

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ACF Long Term Trend of Flows and Demands

Thirty years of data were analyzed to determine the long term trend of water supply withdrawals and flows related to Lake Lanier in the ACF Basin. Specifically, the average annual data for the 1977 – 2006 period was plotted for the following three parameters: (1) Gwinnett County, GA withdrawals, (2) Lake Lanier (Buford) discharges and (3) Atlanta flow. A trend line (using Microsoft Excel) was then applied to the data. The 1977 – 2006 period was selected since that was the period of time that OWR had withdrawal data for Gwinnett.



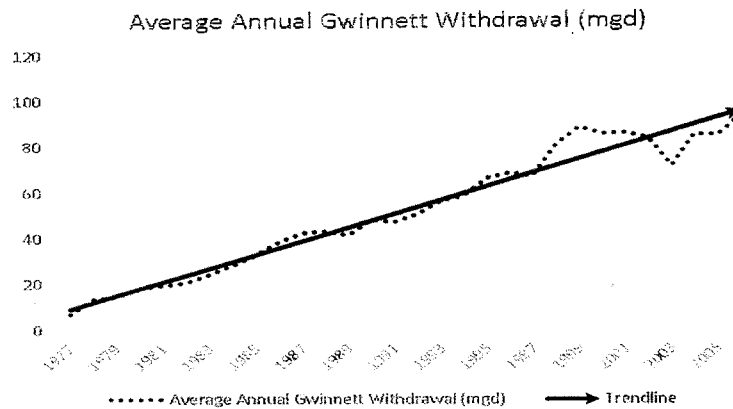
The above three graphs show that where the Gwinnett withdrawals have steadily increased over time, the Buford discharges and Atlanta flow have steadily decreased over time. The data used to create the plots is contained in Exhibit A.

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Corps' Declining Use of Lanier Storage to Benefit Downstream Flows

OWR analyzed the Corps' operations at Lake Lanier and how those operations changed over the same time that the Gwinnett County withdrawals were increasing.

OWR selected the three most recent droughts that occurred during the 1977 – 2006 period. As discussed in the previous section, the 1977 – 2006 period was selected since it was the period that OWR had access to the Gwinnett withdrawal data. OWR focused on the drought period operations since that is the time when the Corps' releases have the most impact on the flows into Alabama. The drought periods analyzed, and highlighted in the following graph, were 1981, 1986-1988, 1999-2001.



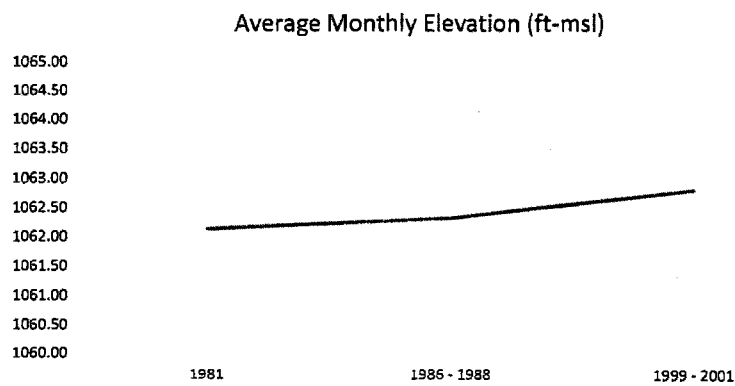
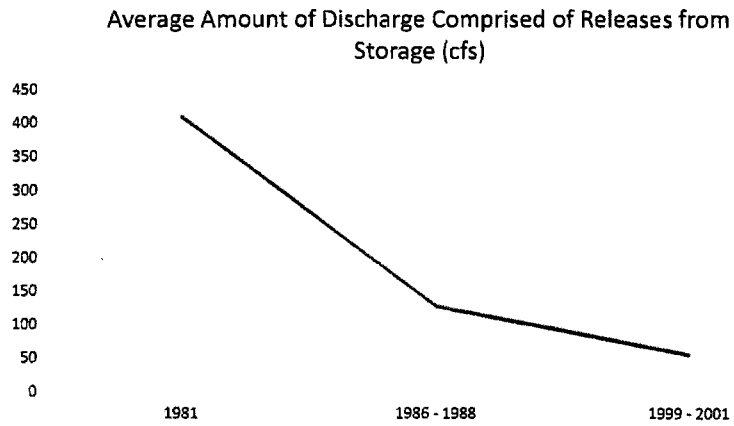
The following table shows the data from the analysis of the Corps' operations of Lake Lanier

Drought Period	Average Inflow (cfs)	Average Discharge (cfs)	Average Amount of Discharge Comprised of Releases from Storage (cfs)	Percent of Discharge Coming from Storage (%)	Average Monthly Elevation (ft-msl)	Average Annual Withdrawal from Lanier (mgd)
1981	918	1,327	409	31%	1062.13	24
1986 - 1988	984	1,111	127	11%	1062.32	47
1999 - 2001	1,015	1,070	55	5%	1062.80	108

The above table shows that as Gwinnett's usage grew over time, the Corps decreased its use of Lanier's storage to augment downstream flows.

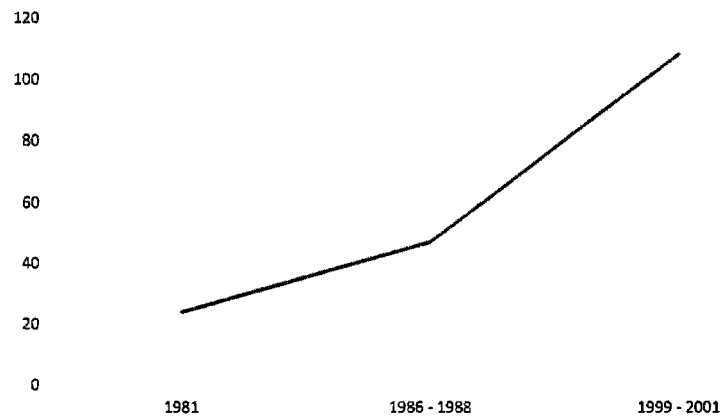
The following are graphical depictions of the data from the above table.

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Average Annual Withdrawal from Lanier (mgd)



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Water Quality

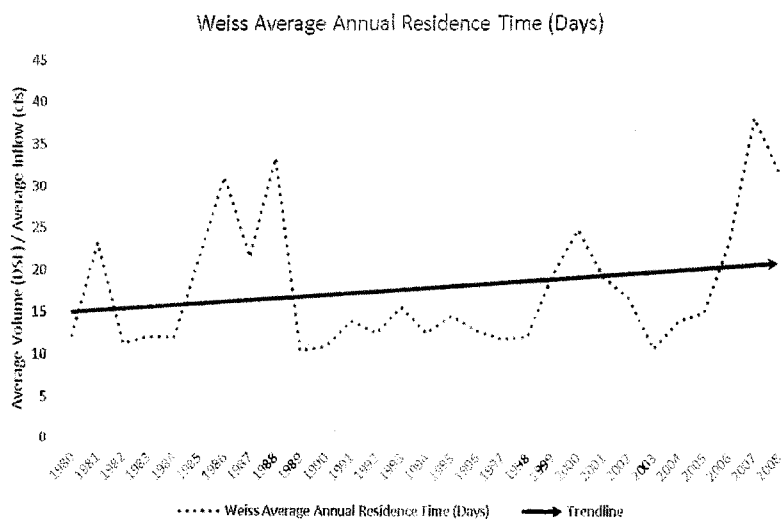
Reduced streamflows at the state line result in adverse water quality conditions in Alabama, such as reduced dissolved oxygen levels in Weiss Reservoir, and may affect protected species and designated critical habitat in the Coosa and Alabama Rivers further downstream. In the recent draft Environmental Impact Statement prepared by the Corps for the ACT manual, the Corps acknowledged that the reduced flows under its proposed alternative would result in adverse downstream environmental impacts, including but not limited to downstream industrial, municipal, and recreational water use in the State of Alabama.

Weiss Lake, the first reservoir on the Coosa River downstream from Lake Allatoona and Carters Lake, is currently listed as impaired by the Alabama Department of Environmental Management (ADEM) due to excessive nutrient loading. ADEM and the U.S. Environmental Protection Agency (USEPA) have adopted a Total Maximum Daily Load (TMDL) for Nutrient Impairment in Weiss Lake. Weiss Lake is susceptible to increased algal productivity during periods of drought. Lower flows resulting in increased residence time also worsen this situation. Residence time is a calculation of the amount of time it takes for water to flow through a reservoir. Generally, the higher the residence time or longer that it takes for water to flow through a reservoir has a negative impact on water quality. If water stays in a reservoir longer, then the water becomes more stagnant which will cause water quality conditions in the lake to decline.

Other water quality parameters are also significantly affected by reduced flow into Weiss Lake and the resulting increase in residence time. These include dissolved oxygen, temperature and pH. Weiss Lake is already experiencing problems with these water quality criteria, especially in time of drought.

As discussed above, Weiss' residence time is a good overall indicator of the expected quality at the lake. With everything else being equal, less flow coming into Weiss will result in higher residence time and in turn lower water quality conditions. The following graphs shows that as the flows entering Alabama have trended down over time, the residence time at Weiss has trended up.

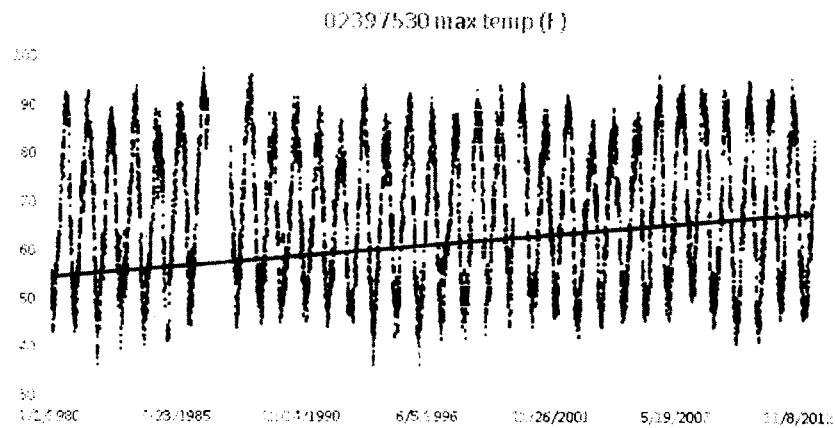
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In addition to analyzing residence time at Weiss Lake, OWR also analyzed water quality data from the USGS gage located at the stateline on the Coosa River. Two water quality parameters were plotted and are shown below.

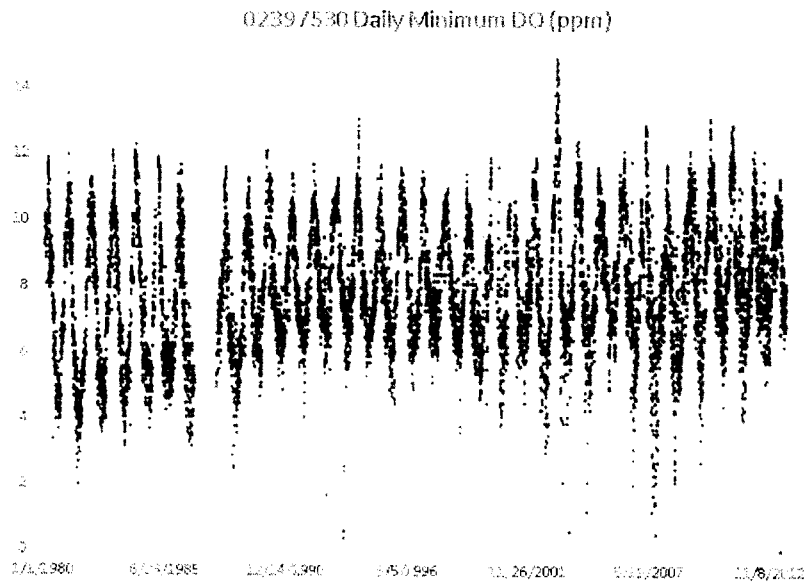
The following graph, shows the maximum daily temperature as recorded at the stateline USGS gage. This graph shows that on numerous occasions Alabama's water quality standard for temperature (90 degrees Fahrenheit) was exceeded. Also, the overall trend of the temperature of the water entering Alabama has been upward over the same period that the Corps has allowed excessive CCMWA withdrawals and altered its operations to withhold more of the inflow during critical drought conditions (as discussed earlier in this report).

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The following graph, shows the minimum daily dissolved oxygen as recorded at the stateline USGS gage. This graph shows that on numerous occasions Alabama's water quality standard for dissolved oxygen (5 mg/l) was not met. This graph shows that the lower dissolved oxygen readings are more likely to occur when the Corps is releasing less water from Allatoona.

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Lastly, with regard to water quality impacts in both the ACT and ACF basins, in 2009 the State of Alabama wrote a letter to the Corps of Engineers requesting action by the Corps to help protect water quality. This letter, attached as Exhibit B, addressed how the Corps operations impacts water quality in both the ACT and ACF basins. This letter highlights some of the water quality problems that had been observed in the recent droughts as well as explaining how the Corps operations directly impact water quality.

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Conclusion

OWR's analysis of the withdrawal data, stream flows and Corps' operational data in both the ACT and ACF River basins has shown that over time:

1. Water withdrawals by Georgia entities for municipal and industrial water supply have increased
2. CCMWA has repeatedly used more storage at Lake Allatoona than it was allowed to use.
3. Flows coming into Alabama have decreased while Georgia parties have withdrawn more and the Corps has held reservoir elevation higher
4. The Corps has altered its operations to the detriment of downstream flow augmentation
5. Water quality, which is highly dependent upon flow, has worsened.

Exhibit A
Data Used for Flow and Demand Trend Plots

WATER WITHDRAWALS - ALLATOONA LAKE GEORGIA - ETOWAH RIVER - ALABAMA/COOSA RIVER BASIN
Monthly and Annual Withdrawal Totals in Millions of Gallons (MG), Average Daily Withdrawals (MGD), and Annual Peak Day Withdrawal (MGD)

Water Storage Space Contract No. DA-31-075-01/ENR 64 116
 Allocates Storage Space: 4,615,115 140 acre-feet) of the project's conservation storage space (285,000 acre-feet) needed to yield an annual average of 54.5 mgd of water during droughts equivalent to the 5th month drought from July 30 - Jan 42.

MONTHLY TOTALS IN MILLIONS OF GALLONS (MG)													TOTAL ANNUAL (MG)	AVG. ANNUAL (MG/D)	PEAK DAY (MG)	PEAK DAY YTD	Peak Day Date
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	(MG)	(MG/D)	(MG)	Days	
1965																	
1966					37.7	141.4	249.5	214.0	175.6	150.3	129.1	120.6	1,208.1	3.30			
1967	87.6	87.5	85.6	102.8	143.6	172.8	201.2	240.7	261.8	272.0	257.8	283.4	1,827.5	5.04			
1968	790.2	726.2	726.2	228.1	254.6	296.6	342.7	308.2	335.6	328.0	302.2	290.8	3,506.3	9.85			
1969	295.5	367.7	208.2			356.7			338.2	330.4	321.2	303.7	1,649.6	7.15			
1970													0.0				
1971													0.0				
1972													0.0	11.90	15.90		
1973													0.0	12.48	12.48		
1974	367.9	354.4	388.2	378.8	464.6	487.8	575.8	543.8	448.8	466.2	402.0	426.4	3,844.8	14.72	19.00		
1975	367.9	368.6	400.9	416.4	466.7	485.8	474.8	485.2	444.8	483.1	471.1	467.7	3,760.5	14.62	22.06		
1976	478.1	416.0	428.2	487.8	456.8	494.0	560.7	656.5	652.2	582.7	536.2	594.3	4,477.1	17.26	24.84		
1977	616.7	530.0	572.2	581.5	720.5	790.0	800.7	736.1	848.6	897.7	676.9	653.3	5,968.2	21.84	26.72		
1978	868.8	552.2	614.0	670.0	675.0	705.0	817.9	720.1	824.6	787.8	681.6	567.1	5,815.3	16.23	20.69		
1979	719.9	930.2	607.5	705.4	768.8	988.3	1,044.3	1,038.8	982.2	791.8	740.0	523.2	6,978.2	26.71	30.38		
1980	711.9	905.5	756.7	754.1	932.9	748.0	1,017.6	985.4	915.5	799.7	644.1	688.5	5,993.8	27.11	39.36		
1981	865.4	597.9	684.6	618.0	800.8	961.4	1,061.0	846.7	788.7	888.5	668.4	597.6	5,938.2	25.54	44.41		
1982	596.0	540.7	576.5	606.6	639.7	708.8	750.4	698.4	650.2	626.3	517.7	601.0	7,431.3	20.35	27.49		
1983	845.7	578.8	658.5	634.3	729.7	907.6	1,023.0	1,015.0	950.1	863.2	698.8	585.0	7,431.3	20.35	27.49		
1984	724.7	685.7	698.2	682.8	1,008.9	1,088.9	1,088.9	1,035.8	1,037.5	928.8	824.8	524.1	10,525.0	28.84	42.80		
1985	962.5	987.7	990.3	998.0	1,067.4	1,054.6	1,054.6	1,000.0	1,009.8	1,075.9	909.0	828.6	12,003.0	32.69	43.67		

COBB COUNTY WATER TREATMENT PLANT		Water Storage Space Contract No. DA-01-076 OVENING-618										PAGE 2									
MONTHLY TOTALS IN MILLIONS OF GALLONS (MG)												TOTAL	AVE	PEAK	Pct.						
DATE	IN	OUT	STORAGE	IN	OUT	STORAGE	IN	OUT	STORAGE	IN	OUT	STORAGE	IN	OUT	STORAGE	IN	OUT	STORAGE	IN	OUT	STORAGE
1999-01-01	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-02	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-03	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-04	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-05	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-06	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-07	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-08	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-09	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-10	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-11	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-12	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-13	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-14	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-15	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-16	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-17	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-18	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-19	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-20	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-21	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-22	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-23	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-24	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-25	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-26	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-27	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-28	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-29	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-30	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-01-31	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-01	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-02	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-03	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-04	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-05	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-06	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-07	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-08	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-09	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-10	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-11	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-12	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-13	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-14	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-15	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-16	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-17	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-18	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-19	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-20	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-21	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-22	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-23	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-24	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-25	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-26	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-27	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
1999-02-28	1.00	0.00	0.00	1.00	0.00																

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USGS Average Annual Allatoona Discharge Data

```

#
#
# US Geological Survey, Water Resources Data
# retrieved: 2013-07-03 14:05:41 EDT      (caww01)
#
# This file contains USGS Surface-Water Annual Statistics
#
# Note: The statistics generated from this site are based on approved daily-
# mean data and may not match those published by the USGS in official
# publications.
# The user is responsible for assessment and use of statistics from this
# site.
# For more details on why the statistics may not match, visit
# http://waterdata.usgs.gov/nwis/?dv_statistics_disclaimer.
#
# ** No Incomplete data have been used for statistical calculation
#
# This file includes the following columns:
#
#
# agency_cd  agency code
# site_no    USGS site number
# parameter_cd
# dd_nu
# year_nu    Water year for value
# mean_va    annual-mean value.
#             if there is not complete record
#             for a year this field is blank
#
#
# Sites in this file include:
# USGS 02394000 ETOWAH RIVER AT ALLATOONA DAM, ABV CARTERSVILLE, GA
#
# Explanation of Parameter Code and dd_nu used in the Statistics Data
# parameter_cd  Parameter Name                      dd_nu
#               Location Name
# 00060         Discharge, cubic feet per second      2
#
#
# agency_cd    site_no parameter_cd    dd_nu    year_nu mean_va
# 5s          15s      5s          3n      4s      12n
USGS 02394000 00060 2 1950 1318
USGS 02394000 00060 2 1951 1259
USGS 02394000 00060 2 1952 2228
USGS 02394000 00060 2 1953 1579
USGS 02394000 00060 2 1954 1530
USGS 02394000 00060 2 1955 1192
USGS 02394000 00060 2 1956 1241
USGS 02394000 00060 2 1957 1476
USGS 02394000 00060 2 1958 1678
USGS 02394000 00060 2 1959 1402
USGS 02394000 00060 2 1960 1563
USGS 02394000 00060 2 1961 2088
USGS 02394000 00060 2 1962 2067
USGS 02394000 00060 2 1963 1952

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USGS	02394000	00060	2	1964	3144
USGS	02394000	00060	2	1965	2133
USGS	02394000	00060	2	1966	1937
USGS	02394000	00060	2	1967	1894
USGS	02394000	00060	2	1968	2200
USGS	02394000	00060	2	1969	1780
USGS	02394000	00060	2	1970	1471
USGS	02394000	00060	2	1971	1858
USGS	02394000	00060	2	1972	2205
USGS	02394000	00060	2	1973	2794
USGS	02394000	00060	2	1974	2517
USGS	02394000	00060	2	1975	2271
USGS	02394000	00060	2	1976	2721
USGS	02394000	00060	2	1977	1943
USGS	02394000	00060	2	1978	2364
USGS	02394000	00060	2	1979	2413
USGS	02394000	00060	2	1980	2802
USGS	02394000	00060	2	1981	1226
USGS	02394000	00060	2	1982	1976
USGS	02394000	00060	2	1983	2379
USGS	02394000	00060	2	1984	2889
USGS	02394000	00060	2	1985	1295
USGS	02394000	00060	2	1986	946.3
USGS	02394000	00060	2	1987	1352
USGS	02394000	00060	2	1988	807.7
USGS	02394000	00060	2	1989	1569
USGS	02394000	00060	2	1990	3233
USGS	02394000	00060	2	1991	2080
USGS	02394000	00060	2	1992	1806
USGS	02394000	00060	2	1993	2446
USGS	02394000	00060	2	1994	1721
USGS	02394000	00060	2	1995	1545
USGS	02394000	00060	2	1996	2392
USGS	02394000	00060	2	1997	1778
USGS	02394000	00060	2	1998	2572
USGS	02394000	00060	2	1999	1016
USGS	02394000	00060	2	2000	1046
USGS	02394000	00060	2	2001	1332
USGS	02394000	00060	2	2002	956.7
USGS	02394000	00060	2	2003	2423
USGS	02394000	00060	2	2004	1517
USGS	02394000	00060	2	2005	2404
USGS	02394000	00060	2	2006	1262
USGS	02394000	00060	2	2007	1001
USGS	02394000	00060	2	2008	626.9
USGS	02394000	00060	2	2009	1340
USGS	02394000	00060	2	2010	2858
USGS	02394000	00060	2	2011	1151
USGS	02394000	00060	2	2012	869.4

July 12, 2013

USGS Average Annual Rome Flow Data

```

#
#
# US Geological Survey, Water Resources Data
# retrieved: 2013-07-03 14:07:18 EDT      (caww01)
#
# This file contains USGS Surface-Water Annual Statistics
#
# Note:The statistics generated from this site are based on approved daily-
# mean data and may not match those published by the USGS in official
# publications.
# The user is responsible for assessment and use of statistics from this
# site.
# For more details on why the statistics may not match, visit
# http://waterdata.usgs.gov/nwis/?dv_statistics_disclaimer.
#
# ** No Incomplete data have been used for statistical calculation
#
# This file includes the following columns:
#
#
# agency_cd  agency code
# site_no    USGS site number
# parameter_cd
# dd_nu
# year_nu    Water year for value
# mean_va    annual-mean value.
#             if there is not complete record
#             for a year this field is blank
#
#
# Sites in this file include:
# USGS 02397000 COOSA RIVER NEAR ROME, GA
#
# Explanation of Parameter Code and dd_nu used in the Statistics Data
# parameter_cd  Parameter Name                dd_nu
#             Location Name
# 00060         Discharge, cubic feet per second      2
#
#
#
# agency_cd    site_no  parameter_cd    dd_nu    year_nu  mean_va
# 5s          15s      5s          3n      4s      12n
# USGS      02397000      00060      2      1950      6691
# USGS      02397000      00060      2      1951      6092
# USGS      02397000      00060      2      1952      7717
# USGS      02397000      00060      2      1953      5912
# USGS      02397000      00060      2      1954      5470
# USGS      02397000      00060      2      1955      4710
# USGS      02397000      00060      2      1956      5263
# USGS      02397000      00060      2      1957      5664
# USGS      02397000      00060      2      1958      6663
# USGS      02397000      00060      2      1963      6846
# USGS      02397000      00060      2      1964      9721
# USGS      02397000      00060      2      1965      6576
# USGS      02397000      00060      2      1966      5920
# USGS      02397000      00060      2      1967      6059

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USGS	02397000	00060	2	1968	7620
USGS	02397000	00060	2	1969	5451
USGS	02397000	00060	2	1970	4448
USGS	02397000	00060	2	1971	6370
USGS	02397000	00060	2	1972	6616
USGS	02397000	00060	2	1973	9509
USGS	02397000	00060	2	1974	8261
USGS	02397000	00060	2	1975	7116
USGS	02397000	00060	2	1976	8730
USGS	02397000	00060	2	1977	6851
USGS	02397000	00060	2	1978	7397
USGS	02397000	00060	2	1979	8744
USGS	02397000	00060	2	1980	9353
USGS	02397000	00060	2	1981	4007
USGS	02397000	00060	2	1982	7408
USGS	02397000	00060	2	1983	7925
USGS	02397000	00060	2	1984	9559
USGS	02397000	00060	2	1985	4040
USGS	02397000	00060	2	1986	2678
USGS	02397000	00060	2	1987	5032
USGS	02397000	00060	2	1988	2509
USGS	02397000	00060	2	1989	6925
USGS	02397000	00060	2	1990	11880
USGS	02397000	00060	2	1991	7127
USGS	02397000	00060	2	1992	6168
USGS	02397000	00060	2	1993	8023
USGS	02397000	00060	2	1994	6419
USGS	02397000	00060	2	1995	5591
USGS	02397000	00060	2	1996	8799
USGS	02397000	00060	2	1997	7769
USGS	02397000	00060	2	1998	8788
USGS	02397000	00060	2	1999	4790
USGS	02397000	00060	2	2000	3630
USGS	02397000	00060	2	2001	5146
USGS	02397000	00060	2	2002	4230
USGS	02397000	00060	2	2003	10070
USGS	02397000	00060	2	2004	5348
USGS	02397000	00060	2	2005	8184
USGS	02397000	00060	2	2006	3763
USGS	02397000	00060	2	2007	2570
USGS	02397000	00060	2	2008	2356
USGS	02397000	00060	2	2009	5642
USGS	02397000	00060	2	2010	8808
USGS	02397000	00060	2	2011	4576
USGS	02397000	00060	2	2012	3895

July 12, 2013

USGS Stats Below Buford Dam

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#
#
# US Geological Survey, Water Resources Data
# retrieved: 2013-07-05 11:06:09 EDT      (sdww01)
#
# This file contains USGS Surface-Water Annual Statistics
#
# Note: The statistics generated from this site are based on approved daily-
# mean data and may not match those published by the USGS in official
# publications.
# The user is responsible for assessment and use of statistics from this
# site.
# For more details on why the statistics may not match, visit
# http://waterdata.usgs.gov/nwis/?dv\_statistics\_disclaimer.
#
# ** No Incomplete data have been used for statistical calculation
#
# This file includes the following columns:
#
#
# agency_cd  agency code
# site_no    USGS site number
# parameter_cd
# dd_nu
# year_nu    Water year for value
# mean_va    annual-mean value.
#             if there is not complete record
#             for a year this field is blank
#
#
# Sites in this file include:
# USGS 02334430 CHATTAHOOCHEE RIVER AT BUFORD DAM, NEAR BUFORD, GA
#
# Explanation of Parameter Code and dd_nu used in the Statistics Data
# parameter_cd Parameter Name                dd_nu  Location
# Name
# 00060        Discharge, cubic feet per second      2
#
#
# agency_cd    site_no parameter_cd  dd_nu  year_nu mean_va
# 5s    15s    5s    3n    4s    12n
USGS 02334430 00060 2 1956 855.4
USGS 02334430 00060 2 1957 855.7
USGS 02334430 00060 2 1958 910.9
USGS 02334430 00060 2 1959 1591
USGS 02334430 00060 2 1960 2397
USGS 02334430 00060 2 1961 2170
USGS 02334430 00060 2 1962 2497
USGS 02334430 00060 2 1963 2011
USGS 02334430 00060 2 1964 2840
USGS 02334430 00060 2 1965 1994
USGS 02334430 00060 2 1966 1791
USGS 02334430 00060 2 1967 2167
USGS 02334430 00060 2 1968 2884
USGS 02334430 00060 2 1969 2012

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USGS	02334430	00060	2	1970	1975
USGS	02334430	00060	2	1971	1748
USGS	02334430	00060	2	1972	2601
USGS	02334430	00060	2	1973	2775
USGS	02334430	00060	2	1974	2307
USGS	02334430	00060	2	1975	2346
USGS	02334430	00060	2	1976	2887
USGS	02334430	00060	2	1977	2113
USGS	02334430	00060	2	1978	2310
USGS	02334430	00060	2	1979	2249
USGS	02334430	00060	2	1980	2904
USGS	02334430	00060	2	1981	1309
USGS	02334430	00060	2	1982	1269
USGS	02334430	00060	2	1983	2179
USGS	02334430	00060	2	1984	2414
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USGS	02334430	00060	2	1990	2960
USGS	02334430	00060	2	1991	1902
USGS	02334430	00060	2	1992	1818
USGS	02334430	00060	2	1993	3089
USGS	02334430	00060	2	1994	1596
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USGS	02334430	00060	2	1998	2660
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USGS	02334430	00060	2	2000	1209
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USGS	02334430	00060	2	2010	2498
USGS	02334430	00060	2	2011	1666
USGS	02334430	00060	2	2012	1093

July 12, 2013

USGS Stats at Atlanta

```

#
#
# US Geological Survey, Water Resources Data
# retrieved: 2013-07-05 11:26:16 EDT      (vaww01)
#
# This file contains USGS Surface-Water Annual Statistics
#
# Note: The statistics generated from this site are based on approved daily-
# mean data and may not match those published by the USGS in official
# publications.
# The user is responsible for assessment and use of statistics from this
# site.
# For more details on why the statistics may not match, visit
# http://waterdata.usgs.gov/nwis/?dv\_statistics\_disclaimer.
#
# ** No Incomplete data have been used for statistical calculation
#
# This file includes the following columns:
#
#
# agency_cd  agency code
# site_no    USGS site number
# parameter_cd
# dd_nu
# year_nu    Water year for value
# mean_va    annual-mean value.
#             if there is not complete record
#             for a year this field is blank
#
#
# Sites in this file include:
# USGS 02336000 CHATTAHOOCHEE RIVER AT ATLANTA, GA
#
# Explanation of Parameter Code and dd_nu used in the Statistics Data
# parameter_cd Parameter Name                      dd_nu  Location
# Name
# 00060          Discharge, cubic feet per second      7
#
#
# agency_cd    site_no parameter_cd  dd_nu  year_nu mean_va
# 5s    15s    5s    3n    4s    12n
# USGS 02336000 00060 7    1956 1145
# USGS 02336000 00060 7    1957 1135
# USGS 02336000 00060 7    1958 1288
# USGS 02336000 00060 7    1959 1898
# USGS 02336000 00060 7    1960 2865
# USGS 02336000 00060 7    1961 2807
# USGS 02336000 00060 7    1962 3105
# USGS 02336000 00060 7    1963 2614
# USGS 02336000 00060 7    1964 3769
# USGS 02336000 00060 7    1965 2903
# USGS 02336000 00060 7    1966 2640
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# USGS 02336000 00060 7    1968 3341
# USGS 02336000 00060 7    1969 2331

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USGS	02336000	00060	7	1970	2135
USGS	02336000	00060	7	1971	2182
USGS	02336000	00060	7	1972	3218
USGS	02336000	00060	7	1973	3638
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USGS	02336000	00060	7	1977	2619
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USGS	02336000	00060	7	1979	2822
USGS	02336000	00060	7	1980	3563
USGS	02336000	00060	7	1981	1626
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USGS	02336000	00060	7	1986	1437
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USGS	02336000	00060	7	1988	1328
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USGS	02336000	00060	7	1998	3425
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USGS	02336000	00060	7	2000	1495
USGS	02336000	00060	7	2001	1409
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USGS	02336000	00060	7	2008	1313
USGS	02336000	00060	7	2009	1384
USGS	02336000	00060	7	2010	3556
USGS	02336000	00060	7	2011	2161
USGS	02336000	00060	7	2012	1345

July 12, 2013

Snapshot from the ACF Factual Appendix – Gwinnett Annual Withdrawal Data

Table 1a - M&I Storage Allocation Necessary to Support Withdrawals Pursuant to the Holdover Contracts (based on 1,087,600 and 94" yield method)

YEAR	Withdrawals								Critical Yield 94" Formula	
	GWINNETT COUNTY, GA		CITY OF CUMMING, GA		CITY OF GAINESVILLE		ATLANTA REGIONAL COMMISSION		TOTAL CHALLENGED WITHDRAWALS (Less NTE or ACTUAL)	Total Challenged Storage* (based on MGD 94" = 1,087,600)
	MGD	NTE MGD ¹	MGD	NTE MGD ¹	MGD	Reduced MGD ²	MGD	NTE MGD ¹		
1977	4.79	40.00			8.83	0.03			48.86	\$6,864.77
1978	12.44	40.00			9.80	1.60			41.80	\$7,787.14
1979	14.34	40.00			10.78	2.38			42.78	\$8,311.79
1980	18.35	40.00	1.88	2.50	10.41	3.41			44.93	\$1,687.86
1981	19.36	40.00	.67	2.50	10.94	2.94			46.41	\$1,346.49
1982	20.71	40.00	2.63	2.50	10.45	2.45			44.96	\$1,682.97
1983	24.44	40.00	2.40	2.50	10.31	2.31			44.81	\$1,442.26
1984	28.14	40.00	2.44	2.50	10.17	2.17			44.62	\$1,214.11
1985	32.63	40.00	2.73	2.50	10.06	2.06			43.94	\$8,068.47
1986	38.41	40.00	2.72	2.50	10.14	2.14			47.34	\$4,446.71
1987	43.33	42.33	2.29	2.50	10.81	12.00	241.52	50.00	109.41	\$36,813.74
1988	49.14	53.00	1.47	10.00	10.71	12.00	235.16	50.00	126.60	\$43,601.62
1989	41.99	53.00	2.18	10.00	10.53	12.00	231.35	50.00	126.60	\$43,601.62
1990	48.26	53.00	2.18	10.00	11.39	12.00	241.32	50.00	126.60	\$43,601.62
1991	47.24	53.00	2.41	10.00	11.43	12.00	237.82	50.00	126.60	\$43,601.62
1992	50.58	53.00	4.33	10.00	12.22	12.00	239.93	50.00	126.60	\$43,601.62
1993	56.43	58.43	5.17	10.00	11.89	12.00	246.26	50.00	128.42	\$47,438.89
1994	58.49	58.49	4.45	10.00	12.83	12.00	269.57	50.00	138.40	\$49,888.89
1995	66.15	66.15	7.05	10.00	13.54	12.00	279.51	50.00	148.16	\$56,897.41
1996	68.59	68.59	8.86	10.00	13.80	12.00	277.15	50.00	148.89	\$57,898.47
1997	66.85	66.85	10.04	10.04	14.08	13.00	278.41	50.00	128.89	\$49,446.84
1998	80.77	80.77	10.51	10.51	15.84	12.00	267.68	50.00	163.28	\$76,886.70
1999	83.28	83.28	12.09	12.09	16.98	12.00	221.37	50.00	163.37	\$87,890.18
2000	83.41	83.41	11.60	11.60	17.85	12.00	218.40	50.00	158.81	\$83,463.84
2001	85.77	85.77	12.37	12.37	17.65	12.00	207.97	50.00	160.14	\$84,842.63
2002	83.80	83.80	11.05	11.05	17.29	12.00	221.79	50.00	164.86	\$86,666.08
2003	71.28	71.28	11.05	11.05	16.83	12.00	289.40	50.00	146.33	\$86,726.23
2004	84.97	84.97	11.27	11.27	17.91	12.00	302.75	50.00	168.34	\$81,688.81
2005	84.74	84.74	10.52	10.52	17.89	12.00	303.77	50.00	167.27	\$88,847.46
2006	82.81	82.81	18.79	18.79	18.89	12.00	315.78	50.00	175.78	\$89,489.62

1. Data can be found in the record at ACF044136 (Gwinnett); ACF044289 (Cumming); ACF044241 (Gainesville); and ACF044244 (ARC).

2. Reduced withdrawals reflect the highest of actual total pumped or not-to-exceed amount (20 MGD), less 2 MGD related to the City of Gainesville's relocation contract. ACF044236.

3. Not-to-exceed (NTE) amounts are equal to the higher of the contract amount or actual withdrawals. ARC.

July 12, 2013

Exhibit B

2009 Letter to the Corps of Engineers

July 12, 2013

OWEN TREY GLENN, III
DIRECTOR

Alabama Department of Environmental Management
adem.alabama.gov
1400 Cottonwood Blvd., 36116-7099 Phone Office: 205-353-1461
Montgomery, Alabama 36103-1461
(205) 353-1700
FAX: (205) 271-7950

BOB RILEY
GOVERNOR

September 9, 2009

Brigadier General Todd F. Semonite
South Atlantic Division Commander
USACE South Atlantic Division
60 Forsyth Street SW
Atlanta, Georgia 30303

RE: Water Quality Impacts to Alabama

Dear General Semonite:

The Alabama Department of Environmental Management (ADEM) is responsible for the protection and management of the quality of Alabama's surface waters. Recent data raises significant issues regarding water quality. By this letter, I am requesting action by your organization to protect water quality.

In 1996, the ADEM identified five of the six reservoirs on the Coosa River within the State of Alabama as being impaired, namely Weiss Lake, Neely Henry Lake, Logan Martin Lake, Day Lake and Mitchell Lake. In October 2008, ADEM and EPA Region 4 established Final Nutrient and Organic Enrichment Dissolved Oxygen (EOD) and Total Maximum Daily Loads (TMDLs) for the aforementioned reservoirs. The 2008 TMDLs were based on protection of water quality standards, namely dissolved oxygen and chlorophyll *a* criteria targets specific to each of the five reservoirs. The TMDLs for total phosphorus (TP) were based on critical flow conditions during a specific period of record. More specifically, the Weiss Lake TMDL established reductions of 30% at the ALGA Stateline for both the Chattahoochee and Coosa rivers.

Water quality modeling conducted as part of the TMDL process demonstrated that retention time is directly correlated to increased algal production in Weiss Lake as well as in the downstream reservoirs. Therefore, if flows in the Coosa River are decreased as a result of decreased releases from Carters and Allatoona reservoirs and/or other proposed withdrawals within the Coosa River Basin in Georgia, impacts to water quality are imminent. In addition, modeling demonstrates that if flows into Weiss Lake are reduced from the critical condition flows used in the TMDL, then allowable phosphorus loads from Georgia must be further reduced in order to maintain applicable water quality standard.

Based on water quality monitoring data collected by ADEM, there are documented cases of degraded water quality during past drought years in the Coosa and Tallapoosa system. These impacts resulted in reduced levels of dissolved oxygen and increased algal biomass. Such water quality conditions during drought conditions can cause considerable stress on aquatic communities in the river and reservoir systems. This can even include increased fish & mussel kills. The diminished water quality also created greater challenges to industries and municipalities in meeting the conditions of their permits and complying with applicable water quality standards. Diminished water quality also has adverse impacts on water treatment costs for public water supply systems.

Birmingham Branch
1000 University
Birmingham, AL 35202
205-353-1461

Dothan Branch
1000 University
Dothan, AL 36023
205-353-1461

Mobile Branch
1000 University
Mobile, AL 36688
205-353-1461

Montgomery Branch
1000 University
Montgomery, AL 36103
205-353-1461

July 12, 2013

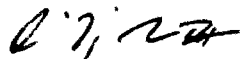
Brigadier General Todd T. Semonite
0.92009
Page 2 of 2

In addition, continued economic development within these river basins is dependent upon a reliable and adequate supply of clean water. Decreased water quantity and quality in the ACT restricts the ability of local communities to attract new businesses or expand existing businesses and affects the quality of life of Alabama citizens living, working and recreating along these rivers.

The Department is committed to protecting Alabama's water resources for the citizens of Alabama. With that said, we are deeply concerned that historical and current actions of the USACE-SAD with respect to reservoir operations have and will continue to directly impact waters of the State of Alabama. By this letter I am asking for the Corps to ensure that its operations of Lake Allatoona and Carters Lake include releases that will result in stream flows entering Alabama that are consistent with those flows used in setting the water quality standards described in this letter. For your convenience I have attached a graph depicting the Coosa River flow used in setting the water quality needs.

Lastly, the NPDES discharge permits issued to facilities in Alabama for discharges to the Chattahoochee River in the Phenix City area are based on a seven-day average river flow of 1,386 cfs. Since January of 2009 seven-day average flows from the West Point Dam have been less than 1,386 cfs on 68 occasions and 57 of those occurrences were between June 1 and August 31. Between June 16 and July 16 dissolved oxygen levels in the Chattahoochee River upstream of the MeadWestvaco facility declined to less than 5.0 mg/l on at least 9 days (see the attached chart). Each time the dissolved oxygen concentration declined to less than 5.0 mg/l the seven-day average flow released from the West Point Dam was less than 1,386 cfs. Therefore the CDD should ensure that at least 1,386 cfs passes by Phenix City on a 7 day average to ensure compliance with Alabama's water quality standards.

Sincerely,



Denis "Denny" Glenn III
Director

Attachments

cc: Stan Melburg, US EPA Region 4

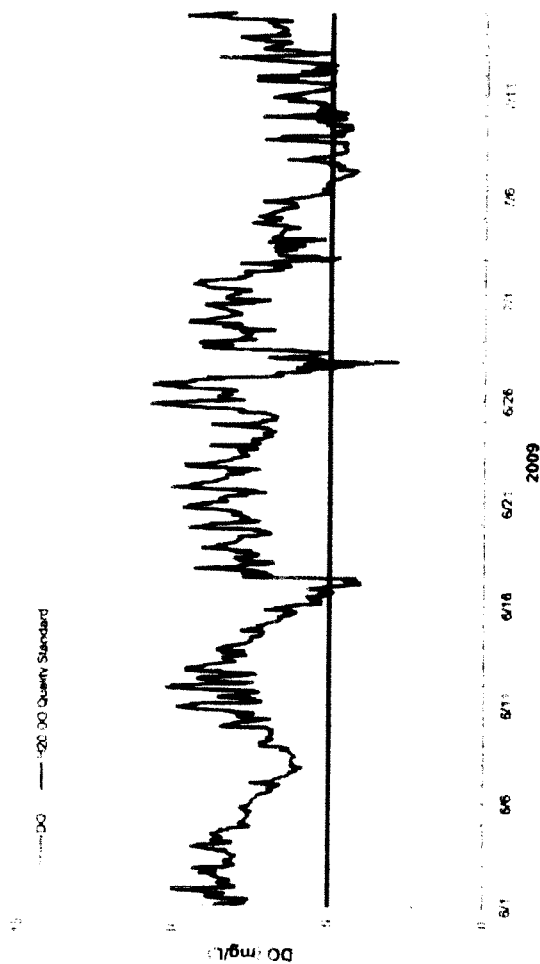
July 12, 2013

Coosa River near Rome, GA
USGS Station 02397000
01/01/2005 - 12/31/2005



July 12, 2013

MeadWestvaco - Mahrt Mill River Intake DO



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12/8/2012

Could a New Water Control Manual Mean an End to the ACF Water Wars?

Following an announcement that it was preparing for drought conditions at Lake Lanier, the U.S. Army Corps of Engineers (Corps) recently indicated its intent to resume updating water control plans for the Apalachicola-Chattahoochee-Flint River Basin (ACF). Despite significant changes in water usage, ACF operations have been governed by the original manual, issued in the 1950s. The Corps' previous attempts to update the manual have been delayed by various litigation, first initiated in 1990, and subsequent attempts at negotiation among the basin states (Alabama, Florida, and Georgia), which have, in turn, prolonged the so-called ACF water wars.

Two decades of ongoing litigation has resulted in a consolidation of seven cases, each with similar claims relating to the Corps' authority to allocate water storage to various Georgia communities for municipal and industrial (M&I) use, as discussed in CRS Report R42805. In a 2008 decision addressing one of the cases, the U.S. Court of Appeals for the D.C. Circuit ruled that water storage contracts entered by the Corps to provide increased withdrawals for M&I use at the expense of hydropower customers violated the Corps' authority under the Water Supply Act (WSA). Under the WSA, the Corps may reallocate water storage from originally authorized purposes to M&I use without congressional approval if the reallocation would not seriously affect the original project purposes or would not constitute a major operational change. According to the D.C. Circuit, the Corps' reallocation of water to M&I use at the expense of hydropower users required congressional authorization.

In 2011, the U.S. Court of Appeals for the 11th Circuit issued a separate opinion related to the consolidated ACF cases. First, the 11th Circuit found that it did not have jurisdiction to consider several of the ACF cases because the Corps had not taken final action in those cases and as a result, the cases were not ripe for judicial review. In other words, until the Corps makes final determinations on water storage at Lake Lanier, some of the ACF cases cannot be considered by the court. Second, the 11th Circuit found that the Corps' rejection of Georgia's request for increased releases constituted final agency action and was reviewable. In contrast to the D.C. decision, the 11th Circuit found that water supply was an original project purpose under Lake Lanier's authorizing legislation and that water supply storage may be expanded beyond that original authorization under the WSA. Accordingly, the 11th Circuit ordered the Corps to reconsider Georgia's request but did not resolve the question of proper allocation of Lake Lanier.

The Corps responded to the 11th Circuit's order in June 2012, issuing a legal analysis of its authority for water supply at Lake Lanier. Ultimately, the Corps explained that it "clearly has the authority to accommodate current water supply withdrawals under [its] combined authority ... [but] has made no final decision to continue current operations or to adopt some other mode of operations..." The Corps stated that it would defer its decision on ACF operations until it completes an updated manual and environmental review.

Although the apparent split between the D.C. and 11th Circuits might have suggested that review of the consolidated cases by the U.S. Supreme Court – and a final resolution – was likely, the Court declined to review the ACF cases without comment. The Solicitor General's brief in the case (often given deference by the Court when considering whether to review a case) suggested that the Court's review would be "premature" since the 11th Circuit had not ordered the Corps to grant or deny Georgia's request, but only had ordered the Corps to analyze its authority. The Solicitor General also argued that the case was not the proper means for resolving the scope of the WSA because the courts had not defined any such scope. Instead, according to his argument, questions related to the competing states' interests in the ACF would be better addressed by Congress or through a lawsuit requesting equitable apportionment by the Court.

The Corps' announcement signals another opportunity to resolve the dispute over the proper allocation of water storage at Lake Lanier and potentially end the ACF water wars. However, if the parties are not satisfied with the updating process or completed manual, they may continue the litigation, which is essentially on hold

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- Emergency Management

Could a New Water Control Manual Mean an End to the ACF Water Wars?

pending Corps' action. Of course, Congress may resolve the ACF dispute, if it chooses, through legislation clarifying the purposes of Lake Lanier or defining the scope of the WSA. Alternatively, if the states choose, they may seek relief directly from the Supreme Court, which could apportion the waters of the basin under its constitutional authority.

Posted at 12/06/2012 03:47 PM by Cynthia Brougher | Share Sidebar

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**MEMORANDUM**

January 8, 2013

Subject: Chronology of Statutory Authorizations, Agency Actions, and Litigation Related to Water Resources Management in the Apalachicola-Chattahoochee-Flint River Basin

From: Cynthia Brougher
Legislative Attorney
x7-9121

Nicole T. Carter
Specialist in Natural Resources Policy
x7-0854

This memorandum was prepared to enable distribution to more than one congressional office.

This memorandum provides a chronology of statutory authorizations and related agency actions for federal water management projects in the Apalachicola-Chattahoochee-Flint River Basin (ACF) and subsequent litigation involving the interstate dispute between Alabama, Florida, and Georgia's competing claims to water supply in the basin. This chronology highlights selected significant events and actions related to water resources management. A detailed examination of agency actions and cases is beyond the scope of this memorandum. For a comprehensive analysis of these issues in the context of federal water management legislation, see CRS Report R42805, *Reallocation of Water Storage at Federal Water Projects for Municipal and Industrial Water Supply*.

<u>Year</u>	<u>Action</u>
1945-1946	Congress first authorizes construction of federal facilities for water resources development in the ACF through the Rivers and Harbors Acts of 1945 and 1946. ¹
1947-1954	U.S. Army Corps of Engineers (Corps) constructs Jim Woodruff Dam.
1955-1957	Corps constructs Buford Dam (forming Lake Lanier).
1955-1963	Corps constructs Walter F. George Dam and George W. Andrews Dam.
1958	Congress enacts Water Supply Act, authorizing the Corps to include water storage at new and existing reservoir projects for municipal and industrial (M&I) water needs. ²

¹ Rivers and Harbors Act of 1945, 59 Stat. 10 (March 2, 1945); Rivers and Harbors Act of 1946, 60 Stat. 634 (July 24, 1946).

² P.L. 85-500, title III, § 301 (July 3, 1948), 72 Stat. 39. See also P.L. 87-88, § 10, (July 20, 1961), 75 Stat. 210; P.L. 99-662, title IX, § 932(a), (Nov. 17, 1986), 100 Stat. 4196.

- 1962 Congress authorizes construction of West Point Dam.³
- 1965-1975 Corps constructs West Point Dam.
- 1989 Corps releases draft Water Control Plan for Lake Lanier that would allow roughly double the storage space for municipal water withdrawals for Georgia.
- Three species of freshwater mussels, which are located in the ACF, are listed under the federal Endangered Species Act (ESA).⁴
- 1990 Alabama and Florida file suit against the Corps in federal district court in Alabama to stop implementation of the Water Control Plan and the larger withdrawals for Georgia, alleging that the Corps exceeded its authority under the WSA by reallocating storage in the ACF reservoirs.⁵ This case often is referred to as the Alabama case.
- 1990 Corps begins operating ACF facilities under the 1989 draft Water Control Plan.
- 1991 Gulf sturgeon, which are located in the ACF, are listed as threatened under the ESA.
- 1992 Alabama, Florida, Georgia, and the Corps enter a Memorandum of Agreement (MOA), which authorized a study of water supply issues.
- 1997 Congress ratifies the Apalachicola-Chattahoochee-Flint River Basin Compact (ACF Compact) to which Alabama, Florida, and Georgia have agreed.⁶ The compact replaces the 1992 MOA and commits the parties to negotiate a resolution of the dispute over withdrawals.
- 2000 Southeastern Federal Power Customers (SeFPC) files suit against the Corps in the federal district court for the District of Columbia, alleging that the increased withdrawals provided by the Corps' Water Control Plan exceed the Corps' authority under the WSA.⁷ This case often is referred to as the D.C. case.
- Georgia requests that the Corps modify ACF project operations to meet water supply needs through 2030.
- 2001 Georgia files suit against the Corps to increase its water supply pursuant to its 2000 request.⁸ This case often is referred to as the Georgia I case.
- 2002 The Corps rejects Georgia's 2000 request for increased withdrawals to meet water supply needs, claiming it lacks legal authority for the requested withdrawals.

³ Flood Control Act of 1962, 76 Stat. 1180 (October 23, 1962).

⁴ P.L. 93-205, 87 Stat. 884. 16 U.S.C. §§1531-1544.

⁵ Alabama v. U.S. Corps of Engineers, No. CV-90-H-01331-E (N.D. Ala., Eastern Division, filed June 29, 1990).

⁶ P.L. 105-104 (1997).

⁷ Southeastern Federal Power Customers, Inc. v. U.S. Army Corps of Engineers, No. 1:00CV02975 (D.D.C., filed on December 12, 2000).

⁸ Georgia v. U.S. Army Corps of Engineers, No. CV 2:01-CV-26-RWS (N.D. Ga., Gainesville Division, filed on February 7, 2001).

- 2003 After several extensions, the ACF Compact ultimately terminates with no final agreement reached.
- 2004 The D.C. district court conditionally approves a settlement agreement reached among the original parties (SeFPC, the Corps, and Georgia) in the D.C. case.⁹
- 2006 Corps initiates endangered species consultation with U.S. Fish and Wildlife Service (FWS) on the 2006 Interim Operations Plan, which amends the draft 1989 Water Control Plan.
- 2007 All pending district court cases are consolidated in proceedings to be held in federal district court in Florida. (D.C. case originally excluded while pending appeal by Alabama and Florida who had intervened in the case to challenge the settlement agreement).¹⁰ As new cases are filed and when the D.C. case is remanded to the district court, they are included in the consolidated proceedings.¹¹
- Corps implements Exceptional Drought Operations under an amendment to the 2006 Interim Operations Plan.
- 2008 The U.S. Court of Appeals for the D.C. Circuit holds that the reallocation provided under the settlement agreement in the D.C. case is not valid.¹² The D.C. Circuit finds that water supply is not an authorized purpose of the project and that the Corps has reallocated over 22% of Lake Lanier's storage capacity without congressional authorization in violation of the WSA.
- Corps releases a 2008 revised Interim Operations Plan.
- 2009 The Florida district court holds that water supply is not an authorized purpose of Lake Lanier and that the Corps' actions constitute a major operational change and seriously affects project purposes in violation of the WSA.¹³ The court orders the Corps to seek additional congressional authorization or otherwise resolve the dispute within three years.
- 2011 The U.S. Court of Appeals for the 11th Circuit reverses the Florida district court's decision, holding that water supply was an authorized purpose of Lake Lanier.¹⁴ The 11th Circuit directs the Corps to finalize its decisionmaking process with respect to its authority in the ACF and particularly under the WSA. The court holds that the Corps must reconsider Georgia's 2000 request for increased withdrawals in light of both the original project authorization and the WSA.

⁹ *Southeastern Federal Power Customers v. Caldera*, 301 F.Supp.2d 26, 35 (D.D.C. 2004).

¹⁰ *See In re Tri State Water Rights Litigation*, 481 F.Supp.2d 1351, 1352 (Judicial Panel on Multidistrict Litigation 2007).

¹¹ *See Georgia v. U.S. Army Corps of Engineers*, No. 06-CV-1473 (N.D. Ga., Atlanta Division, filed June 20, 2006) (the Georgia case); *Florida v. U.S. Fish and Wildlife Service*, No. 06-CV-410 (N.D. Fla., filed Sept. 6, 2006) (the Florida case); *City of Apalachicola v. U.S. Army Corps of Engineers*, No. 4:08-CV-23-RH/WCS (N.D. Fla., filed January 15, 2008) (the City of Apalachicola case); *City of Columbus v. U.S. Army Corps of Engineers*, No. 07-CV-125 (M.D. Ga., Columbus Division, filed August 13, 2007) (the City of Columbus case).

¹² *Southeastern Federal Power Customers v. Geren*, 514 F.3d 1316 (D.C. Cir. 2008).

¹³ *In re Tri-State Water Rights Litigation*, 639 F.Supp.2d 1308 (M.D. Fla. 2009).

¹⁴ *In re Tri-State Water Rights Litigation*, 644 F.3d 1160 (11th Cir. 2011).

2012 The Corps issues a legal opinion concluding that the agency has authority to use its discretion to accommodate Georgia's 2000 request for increased withdrawals, but notes that it will not make a final decision on that request until it concludes updating the ACF operations manual.¹⁵

The U.S. Supreme Court declines to hear the consolidated cases on appeal from the 11th Circuit.¹⁶

Corps continues its process of revising the ACF Water Control Manual, anticipating completion in late 2015.¹⁷

¹⁵ Office of the Chief Counsel, *Authority to Provide for Municipal and Industrial Water Supply from the Buford Dam/Lake Lanier Project, Georgia*, U.S. Army Corps of Engineers (June 25, 2012), available at http://www.sam.usace.army.mil/2012ACF_legalopinion.pdf.

¹⁶ See *Florida v. Georgia*, 80 U.S.L.W. 3708 (2012); *Alabama v. Georgia*, 80 U.S. L.W. 3708 (2012); *Southeastern Federal Power v. Georgia*, 80 U.S.L.W. 3708 (2012).

¹⁷ *Corps to Reopen Public Scoping for Updating Water Control Plans and Manuals for the Apalachicola-Chattahoochee-Flint River Basin Water Control Manual*, U.S. Army Corps of Engineers (Oct. 12, 2012), available at <http://www.sam.usace.army.mil/DistrictHomePage/Lastest%20News/12-29%20USACE%20rescoping.pdf>.

Section 2014 of S. 601 (WRDA of 2013), as passed by the Senate.

This provision would give the Corps new authority for “dam optimization.” However, revisions to Section 2014 ensure that the Corps does **not** receive additional discretion to increase water supply storage at Lake Lanier and Lake Allatoona, even while the Corps was able to obtain that authority for other reservoirs elsewhere in the United States. Section 2014 expressly states that the Corps does not receive additional authority for increased water supply storage “for any project in the [ACF and ACT system].”

1 or a separable element of an authorized flood
 2 damage reduction project under this subsection
 3 that has been constructed by the non-Federal
 4 interest under this section as of the date of en-
 5 actment of this Act, the Secretary may provide
 6 the non-Federal interest with a credit in that
 7 amount, which the non-Federal interest may
 8 apply to the share of the cost of the non-Fed-
 9 eral interest of carrying out other flood damage
 10 reduction projects or studies.”.

11 **SEC. 2014. DAM OPTIMIZATION.**

12 (a) DEFINITION OF OTHER RELATED PROJECT BEN-
 13 EFITS.—In this section, the term “other related project
 14 benefits” includes—

15 (1) environmental protection and restoration,
 16 including restoration of water quality and water
 17 flows, improving movement of fish and other aquatic
 18 species, and restoration of floodplains, wetlands, and
 19 estuaries;

20 (2) increased water supply storage (except for
 21 any project in the Apalachicola-Chattahoochee-Flint
 22 River system and the Alabama-Coosa-Tallapoosa
 23 River system);

24 (3) increased hydropower generation;

25 (4) reduced flood risk;

1 (5) additional navigation; and

2 (6) improved recreation.

3 (b) PROGRAM.—

4 (1) IN GENERAL.—The Secretary may carry out
5 activities—

6 (A) to improve the efficiency of the oper-
7 ations and maintenance of dams and related in-
8 frastructure operated by the Corps of Engi-
9 neers; and

10 (B) to maximize, to the extent prac-
11 ticable—

12 (i) authorized project purposes; and

13 (ii) other related project benefits.

14 (2) ELIGIBLE ACTIVITIES.—An eligible activity
15 under this section is any activity that the Secretary
16 would otherwise be authorized to carry out that is
17 designed to provide other related project benefits in
18 a manner that does not adversely impact the author-
19 ized purposes of the project.

20 (3) IMPACT ON AUTHORIZED PURPOSES.—An
21 activity carried out under this section shall not ad-
22 versely impact any of the authorized purposes of the
23 project.

24 (4) EFFECT.—

1 (A) EXISTING AGREEMENTS.—Nothing in
2 this section—

3 (i) supersedes or modifies any written
4 agreement between the Federal Govern-
5 ment and a non-Federal interest that is in
6 effect on the date of enactment of this Act;
7 or

8 (ii) supersedes or authorizes any
9 amendment to a multistate water-control
10 plan, including the Missouri River Master
11 Water Control Manual (as in effect on the
12 date of enactment of this Act).

13 (B) WATER RIGHTS.—Nothing in this sec-
14 tion—

15 (i) affects any water right in existence
16 on the date of enactment of this Act;

17 (ii) preempts or affects any State
18 water law or interstate compact governing
19 water; or

20 (iii) affects any authority of a State,
21 as in effect on the date of enactment of
22 this Act, to manage water resources within
23 that State.

24 (5) OTHER LAWS.—

1 (A) IN GENERAL.—An activity carried out
2 under this section shall comply with all other
3 applicable laws (including regulations).

4 (B) WATER SUPPLY.—Any activity carried
5 out under this section that results in any modi-
6 fication to water supply storage allocations at a
7 reservoir operated by the Secretary shall comply
8 with section 301 of the Water Supply Act of
9 1958 (43 U.S.C. 390b).

10 (c) POLICIES, REGULATIONS, AND GUIDANCE.—The
11 Secretary shall carry out a review of, and as necessary
12 modify, the policies, regulations, and guidance of the Sec-
13 retary to carry out the activities described in subsection
14 (b).

15 (d) COORDINATION.—

16 (1) IN GENERAL.—The Secretary shall—

17 (A) coordinate all planning and activities
18 carried out under this section with appropriate
19 Federal, State, and local agencies and those
20 public and private entities that the Secretary
21 determines may be affected by those plans or
22 activities; and

23 (B) give priority to planning and activities
24 under this section if the Secretary determines
25 that—

1 (i) the greatest opportunities exist for
2 achieving the objectives of the program, as
3 specified in subsection (b)(1), and

4 (ii) the coordination activities under
5 this subsection indicate that there is sup-
6 port for carrying out those planning and
7 activities.

8 (2) NON-FEDERAL INTERESTS.—Prior to car-
9 rying out an activity under this section, the Sec-
10 retary shall consult with any applicable non-Federal
11 interest of the affected dam or related infrastruc-
12 ture.

13 (c) REPORTS.—

14 (1) IN GENERAL.—Not later than 2 years after
15 the date of enactment of this Act and every 2 years
16 thereafter, the Secretary shall submit to Congress a
17 report describing the actions carried out under this
18 section.

19 (2) INCLUSIONS.—Each report under para-
20 graph (1) shall include—

21 (A) a schedule for reviewing the operations
22 of individual projects; and

23 (B) any recommendations of the Secretary
24 on changes that the Secretary determines to be
25 necessary—

1 (i) to carry out existing project au-
2 thorizations, including the deauthorization
3 of any water resource project that the Sec-
4 retary determines could more effectively be
5 achieved through other means;

6 (ii) to improve the efficiency of water
7 resource project operations; and

8 (iii) to maximize authorized project
9 purposes and other related project benefits.

10 (3) UPDATED REPORT.—

11 (A) IN GENERAL.—Not later than 2 years
12 after the date of enactment of this Act, the Sec-
13 retary shall update the report entitled “Author-
14 ized and Operating Purposes of Corps of Engi-
15 neers Reservoirs” and dated July 1992, which
16 was produced pursuant to section 311 of the
17 Water Resources Development Act of 1990
18 (104 Stat. 4639).

19 (B) INCLUSIONS.—The updated report de-
20 scribed in subparagraph (A) shall include—

21 (i) the date on which the most recent
22 review of project operations was conducted
23 and any recommendations of the Secretary
24 relating to that review the Secretary deter-
25 mines to be significant; and

1 (ii) the dates on which the rec-
2 ommendations described in clause (i) were
3 carried out.

4 (f) FUNDING.—

5 (1) IN GENERAL.—The Secretary may use to
6 carry out this section amounts made available to the
7 Secretary from—

8 (A) the general purposes and expenses ac-
9 count;

10 (B) the operations and maintenance ac-
11 count; and

12 (C) any other amounts that are appro-
13 priated to carry out this section.

14 (2) FUNDING FROM OTHER SOURCES.—The
15 Secretary may accept and expend amounts from
16 non-Federal entities and other Federal agencies to
17 carry out this section.

18 (g) COOPERATIVE AGREEMENTS.—The Secretary
19 may enter into cooperative agreements with other Federal
20 agencies and non-Federal entities to carry out this section.

21 **SEC. 2015. WATER SUPPLY.**

22 Section 301 of the Water Supply Act of 1958 (43
23 U.S.C. 390b) is amended by adding at the end the fol-
24 lowing:

1 “(e) The Committees of jurisdiction are very con-
2 cerned about the operation of projects in the Apalachicola-
3 Chattahoochee-Flint River System and the Alabama-
4 Coosa-Tallapoosa River System, and further, the Commit-
5 tees of jurisdiction recognize that this ongoing water re-
6 sources dispute raises serious concerns related to the au-
7 thority of the Secretary of the Army to allocate substantial
8 storage at projects to provide local water supply pursuant
9 to the Water Supply Act of 1958 absent congressional ap-
10 proval. Interstate water disputes of this nature are more
11 properly addressed through interstate water agreements
12 that take into consideration the concerns of all affected
13 States including impacts to other authorized uses of the
14 projects, water supply for communities and major cities
15 in the region, water quality, freshwater flows to commu-
16 nities, rivers, lakes, estuaries, and bays located down-
17 stream of projects, agricultural uses, economic develop-
18 ment, and other appropriate concerns. To that end, the
19 Committees of jurisdiction strongly urge the Governors of
20 the affected States to reach agreement on an interstate
21 water compact as soon as possible, and we pledge our com-
22 mitment to work with the affected States to ensure prompt
23 consideration and approval of any such agreement. Absent
24 such action, the Committees of jurisdiction should con-
25 sider appropriate legislation to address these matters in-

This is a set of documents related to Section 2015 of the WRDA bill, as reported favorably by this Committee on March 20, 2013. Section 2015 would have established more clear limits on the Corps' authority under the Water Supply Act.

The first document is the official CBO score, showing that Section 2015 did not impact the deficit.

Other documents contain supporting information about Section 2015, as reported by this Committee.



CONGRESSIONAL BUDGET OFFICE
U.S. Congress
Washington, DC 20515

Douglas W. Elmendorf, Director

April 9, 2013

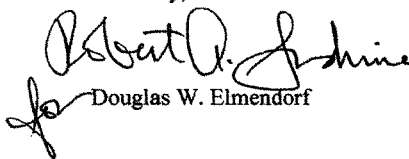
Honorable Barbara Boxer
Chairman
Committee on Environment
and Public Works
United States Senate
Washington, DC 20510

Dear Madam Chairman:

The Congressional Budget Office has prepared the enclosed cost estimate for S. 601, the Water Resources Development Act of 2013.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Aurora Swanson, who can be reached at 226-2860.

Sincerely,


for Douglas W. Elmendorf

Enclosure

cc: Honorable David Vitter
Ranking Member



CONGRESSIONAL BUDGET OFFICE
COST ESTIMATE

April 9, 2013

S. 601

Water Resources Development Act of 2013

*As ordered reported by the Senate Committee on Environment and Public Works
on March 20, 2013*

SUMMARY

S. 601 would authorize the Army Corps of Engineers (Corps) to construct water projects for mitigating storm damage, restoring ecosystems, and reducing erosion on inland and intracoastal waterways. The legislation also would authorize the agency to establish grant programs to assist local and state governments with levee safety and rehabilitation programs. Finally, S. 601 would authorize the Corps and the Environmental Protection Agency (EPA) to provide loans or loan guarantees to state and local governments and certain nongovernmental entities to complete water infrastructure projects.

Assuming appropriation of the authorized and necessary amounts, including adjustments for anticipated increases in construction costs, CBO estimates that implementing S. 601 would cost about \$5.9 billion over the 2014-2018 period. Spending would continue from amounts authorized to be appropriated under the bill after 2018, and CBO estimates that such spending would total \$6.6 million over the 2019-2023 period.

The staff of the Joint Committee on Taxation (JCT) estimates that enacting the bill would reduce revenues by \$135 million over the next 10 years; therefore, pay-as-you-go procedures apply. Enacting the bill would not affect direct spending.

S. 601 would impose intergovernmental and private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA). Public and private entities would be required to comply with regulations to prevent the spread of invasive species. Because the number of affected entities and the cost of compliance would probably be small, CBO expects that the costs of the mandates would fall below the annual thresholds established in UMRA for intergovernmental and private-sector mandates (\$75 million and \$150 million in 2013, respectively, adjusted annually for inflation).

ESTIMATED COST TO THE FEDERAL GOVERNMENT

The estimated budgetary impact of S. 601 is shown in the following table. The costs of this legislation fall within budget function 300 (natural resources and environment).

	By Fiscal Year, in Millions of Dollars					2014-
	2014	2015	2016	2017	2018	2018
CHANGES IN SPENDING SUBJECT TO APPROPRIATION						
Title I – Water Resource Projects						
Estimated Authorization Level	855	873	892	911	932	4,463
Estimated Outlays	342	606	747	848	867	3,410
Title II – Water Resources Policy Reforms						
Estimated Authorization Level	261	263	266	272	278	1,341
Estimated Outlays	104	184	225	254	259	1,026
Title V – Regional and Nonproject Provisions						
Estimated Authorization Level	79	80	82	43	44	327
Estimated Outlays	36	60	71	58	47	271
Title VI – Levee Safety						
Authorization Level	103	103	103	103	103	515
Estimated Outlays	54	85	94	100	100	443
Title VIII – Harbor Maintenance						
Estimated Authorization Level	50	50	50	50	50	250
Estimated Outlays	35	50	50	50	50	235
Title X – Innovative Financing Pilot Projects						
Authorization Level	100	100	100	100	100	500
Estimated Outlays	2	25	66	81	86	260
Other Titles						
Estimated Authorization Level	66	66	66	68	43	308
Estimated Outlays	35	56	62	66	51	269
Total Changes						
Estimated Authorization Level	1,514	1,535	1,559	1,546	1,549	7,704
Estimated Outlays	608	1,066	1,314	1,457	1,460	5,905
CHANGES IN REVENUES*						
Estimated Increase or Decrease (-) in Revenues	0	0	-2	-5	-10	-18

Note: Components may not sum to totals because of rounding.

a. The staff of the Joint Committee on Taxation estimates that enacting and implementing title X of S. 601 would lead to an additional reduction in federal revenues of \$117 million over the 2018-2023 period.

BASIS OF ESTIMATE

For this estimate, we assume that S. 601 will be enacted in 2013 and that the necessary amounts will be appropriated for each fiscal year. Estimated outlays are based on information from the Corps, the Federal Emergency Management Agency (FEMA), and EPA, and on historical spending patterns for similar projects.

Spending Subject to Appropriation

Title I – Water Resource Projects. CBO estimates that implementing title I would cost \$3.4 billion over the 2014-2018 period, assuming appropriation of the necessary amounts.

Title I would authorize the Corps to construct water projects that are in the federal interest if it has completed a project report and has recommended to the Congress—prior to enactment of this legislation—that the project should receive funding for construction. According to information from the Corps, 27 projects meet this criteria. The four largest of those projects—the Mississippi Coastal Improvement Program, the American River Watershed Common Features Project in Natomas Basin, California, the Sabine Neches Waterway in Texas and Louisiana, and the Fargo-Moorhead Metro in Minnesota and North Dakota—have a total estimated cost of \$5.6 billion, with the federal share totaling about \$3.3 billion. CBO estimates that \$1.3 billion of those costs would be incurred over the 2014-2018 period. We estimate that construction costs for the other 23 projects would total \$1.2 billion over the next five years.

Title I also would enable the Corps to increase the authorized construction cost of a project if it meets the criteria in S. 601, has already received an appropriation, and the Corps submits to the Congress details justifying the higher costs. Three projects meet the criteria under the bill for an increase in authorized construction costs, according to the Corps. The largest increase would be \$2.1 billion for the Olmsted Lock and Dam in Illinois. CBO estimates that \$0.9 billion of that increase would be incurred over the 2014-2018 period. We estimate that construction costs for the other two projects would total \$71 million over the next five years. This authority would expire three years after the bill's enactment.

Title II – Water Resources Policy Reforms. Title II would authorize the Corps to implement a pilot program—in coordination with state and local governments, other federal agencies, and interested parties—to stabilize riverbanks and reduce erosion on inland and intracoastal waterways in the United States. The bill also includes pilot programs through which the Corps would be authorized to contract with nonfederal partners to conduct feasibility studies; construct projects to manage risk from floods; reduce damage from storms; and improve navigation of the nation's harbors.

Finally, title II would increase the amounts authorized to be appropriated for other activities performed by the Corps, including flood control, floodplain management, project

modifications to improve the environment, ecosystem restoration, and assistance to states for water resource development.

Based on information from the Corps about costs and the time required to complete similar projects, CBO estimates that implementing this title would cost about \$1 billion over the 2014-2018 period, assuming appropriation of the necessary amounts.

Title V - Regional and Nonproject Provisions. Title V would authorize the Corps to establish regional partnerships with state and local governments, other federal agencies, and interested parties to address regional priorities for water resources, including restoring ecosystems, controlling invasive species, and mitigating impacts from floods and extreme weather. The bill also would authorize the Corps to conduct studies—in collaboration with nonfederal partners—to develop plans and designs and to construct projects that meet the water resource priorities in each region. Based on information from the Corps about water resource needs, CBO estimates that implementing this title would cost \$271 million over the 2014-2018 period, assuming appropriation of the necessary amounts.

Title VI - Levee Safety. Title VI would direct the Corps—in consultation with FEMA—to develop a levee safety program, including a national database to classify flood risk at federal and nonfederal levees, levee safety guidelines, and a public education program focusing on communities vulnerable to flooding from levee failure. The agencies also would be directed to create an independent board to advise the Corps and the Congress on consistent approaches to levee safety and to report on the efficacy of the national levee safety program.

The Corps also would be directed to provide technical assistance and training to state and tribal governments as they develop safety programs to reduce flood damage. Under the bill, the federal share of costs for those activities would be limited to 65 percent of total costs.

Finally, title VI would authorize the Corps to establish grant programs to assist state and tribal governments to develop safety programs for levees and to provide funding assistance to nonfederal partners for rehabilitating levees.

Based on information from the Corps and FEMA about the historical rate of spending for levee inspections and rehabilitation programs and assuming appropriation of the authorized amounts, CBO estimates that implementing title VI would cost \$443 million over the 2014-2018 period.

Title VIII - Harbor Maintenance. The bill would direct the Corps to prioritize navigation projects funded with appropriations from the Harbor Maintenance Trust Fund based on the need to maintain the authorized width and depth of those projects. The bill would make the federal government responsible for all operation and maintenance costs for harbors more than 45 feet deep but less than 50 feet deep. Under current law, such costs for all harbors

that are more than 45 feet deep are shared equally with nonfederal partners. Assuming appropriation of the necessary amounts, CBO estimates that those provisions would cost \$235 million over the 2014-2018 period. That estimate is based on information from the Corps about the number of harbors that are between 45 feet and 50 feet in depth—or expected to be deepened to 45 feet to 50 feet in the next few years—and the incremental costs to the federal government to provide 100 percent of the operation and maintenance costs.

S. 601 also would establish new procedural points of order for considering legislation in either house of the Congress aimed at ensuring that funds appropriated from the Harbor Maintenance Trust Fund (HMTF) each year are equal to the receipts plus the interest credited to the fund each year. Over the past five years, appropriations from the HMTF have averaged around \$800 million a year—or about \$700 million a year less than the revenues and interest credited to the fund. Because current law authorizes the appropriation of such sums as are necessary from the HMTF, this provision does not represent an increase in the amounts authorized to be appropriated.

Title X - Innovative Financing Pilot Projects. This legislation would authorize the appropriation of \$500 million over the 2014-2016 period for the Corps and EPA to provide loans or loan guarantees to state and local governments and certain nongovernmental entities to complete water infrastructure projects. Of the amounts authorized, up to \$11 million over the next five years would be available to support administrative costs incurred by those agencies to complete and service the loan agreements. The bill also would require that eligible projects cost \$20 million or more and that federal loan amounts account for 49 percent or less of the project's eligible costs. Also, under the bill, the sponsor of each project would be required to demonstrate that it has a financial outlook similar to those of bonds rated B- or better by credit rating companies, such as Standard and Poors and Moody's.

Under procedures established in the Federal Credit Reform Act, funds must be appropriated in advance to cover the estimated subsidy cost of loans and loan guarantees, measured on a present-value basis. Projects with at least a B- rating historically have a cumulative default risk of around 5 percent or less. Considering other features of the proposed loan program, such as a grace period on loan repayments until projects are completed and other optional repayment deferrals if projects cannot make timely loan repayments, CBO estimates that most of the loans and loan guarantees under the proposed program would have a subsidy rate between 3 percent and 11 percent. The Department of Transportation currently operates a similar loan program for transportation infrastructure projects known as the Transportation Infrastructure Finance and Innovation Act (TIFIA) program. Direct loans under the TIFIA program have an estimated subsidy rate of about 10 percent. CBO expects that the proposed program would operate much like TIFIA and that the Corps and EPA would mostly offer direct federal loans. Based on historical

spending rates and the demand for infrastructure loans from TIFIA, CBO estimates that implementing this pilot program would cost \$260 million over the 2014-2018 period.

Other Titles. Most other costs would result from titles IV, IX, and XI. Based on information from the Corps and FEMA, and on historical spending patterns of similar programs, CBO estimates that implementing those titles would cost \$269 million over the 2014-2018 period.

- **Title IV – Water Resource Studies.** This title would authorize the Corps to conduct studies of projects aimed at reducing storm damage and flood risk, improving navigation, restoring ecosystems, and other related issues. Assuming appropriation of the authorized amounts, CBO estimates that implementing this title would cost \$103 million over the 2014-2018 period.
- **Title IX - Dam Safety.** This title would reauthorize the national dam safety program operated by FEMA. Under the bill, FEMA would also be directed to implement a public awareness and dam safety education program focusing on disaster preparedness. Assuming appropriation of the amounts specifically authorized in the bill, CBO estimates that implementing this title would cost \$63 million over the 2014-2018 period.
- **Title - XI Extreme Weather.** This title would authorize the Corps to conduct watershed assessments in disaster areas and to carry out water resources projects to restore water infrastructure and natural features, such as wetlands that help mitigate storm damages. Assuming appropriation of the authorized amounts, CBO estimates that implementing this title would cost \$100 million over the 2014-2018 period.
- **Miscellaneous.** Other costs would result from provisions that would make minor changes to specific projects and some process changes to Inland Waterways projects. Assuming appropriation of the necessary amounts, CBO estimates that those provisions would cost about \$3 million over the 2014-2018 period.

Changes in Revenues

Title X would authorize the appropriation of funds for the Corps and EPA to issue direct federal loans and loan guarantees to support water infrastructure projects. JCT expects that some of these funds would be used by states to acquire additional funds by issuing tax-exempt bonds. JCT estimates that issuing additional tax-exempt bonds would reduce federal revenues by \$135 million over the next 10 years.

PAY-AS-YOU-GO CONSIDERATIONS

The Statutory Pay-As-You-Go Act of 2010 establishes budget-reporting and enforcement procedures for legislation affecting direct spending or revenues. The budgetary changes (a loss of revenue) that are subject to those pay-as-you-go procedures are shown in the following table.

CBO Estimate of Pay-As-You-Go Effects for S. 601, as ordered reported by the Senate Committee on Environment and Public Works on March 20, 2013

	By Fiscal Year, in Millions of Dollars													2013-	2013-
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2018	2023		
NET INCREASE OR DECREASE (-) IN THE DEFICIT															
Statutory Pay-As-You-Go Impact	0	0	0	2	5	10	16	21	25	27	28	18	135		

INTERGOVERNMENTAL AND PRIVATE-SECTOR IMPACT

Mandates

S. 601 would impose intergovernmental and private-sector mandates, as defined in UMRA, by authorizing the Corps of Engineers to carry out watercraft inspections or other measures to prevent the spread of invasive species. Public and private entities would have to comply with requirements established by the Corps. Because the number of affected entities and the cost of compliance would probably be small, CBO expects that the costs of the mandates would fall below the annual thresholds established in UMRA for intergovernmental and private-sector mandates (\$75 million and \$150 million in 2013, respectively, adjusted annually for inflation).

Other Impacts

Water resource projects and activities authorized in the bill would benefit state, local, and tribal governments. Governments that chose to participate in programs or applied for grants authorized by the bill could incur costs, but those costs would be incurred voluntarily as conditions of federal assistance.

ESTIMATE PREPARED BY:

Federal Spending: Aurora Swanson, Susanne Mehlman, Sarah Puro, and Daniel Hoople

Federal Revenues: Staff of the Joint Committee on Taxation

Impact on State, Local, and Tribal Governments: Melissa Merrell

Impact on the Private Sector: Amy Petz

ESTIMATE APPROVED BY:

Theresa Gullo

Deputy Assistant Director for Budget Analysis

*Support Section 2015 of S. 601 (WRDA 2013)****The Water Supply Act of 1958 (WSA), 43 U.S.C. §390b, is a key federal water resource law.**

- The WSA provides that local water supply is the “primary responsibilit[y] of the States and local interests,” and that Congress must approve adding water supply storage if it would “seriously affect” a reservoir’s original purposes or involve a “major operational change.” These terms were not defined. In recent years, the Army Corps has largely ignored the WSA. And, as recognized in a recent CRS report, the Army Corps is considering an increasing number of water supply transfers, which could mean *less water for hydropower, navigation, recreation, agricultural irrigation, water quality, fish and wildlife conservation, and other uses of federal reservoirs, making this a NATIONAL CONCERN.*

Section 2015—reported unanimously by the EPW Committee—clarifies the WSA in 2 ways:

1. First, it amends 43 U.S.C. §390b to require federal agencies to consider new WSA allocations “cumulatively” with all previous allocations at the reservoir. This would prevent federal agencies from circumventing the intent of the WSA through gradual allocations that, *individually*, would not trigger the WSA but, *taken together*, would.
2. Second, it clarifies the WSA by setting a clear threshold when congressional approval is required. Under Section 2015, Congress would be required to authorize water supply modifications that “involve an allocation or reallocation of storage that is equal to or exceeds 5 percent of the conservation storage pool of the project.”

Section 2015 provides a clear standard and would not impact most federal reservoirs.

- Most federal reservoirs have already been approved by Congress for water supply use or have water supply allocations far below 5% of the reservoir’s storage pool. Based on information in a recent CRS report (pages 5-7), over 90% of Corps reservoirs would not have been impacted by Section 2015’s 5% threshold if it had been part of the WSA since 1958. In fact, contrary to some claims, Section 2015 will have no impact on the majority of water supply usages at Lake Lanier—the largest federal reservoir near Atlanta, Georgia.
- 5% is not a “strict” limit—to the contrary, it allows for significant water supply transfers without congressional approval. For instance, 5% of a 1-million acre-feet reservoir would fill approximately 25,000 Olympic swimming pools—enough pools to cover 12 square miles! That is the amount of daily water for drinking, toilets, and showers for 89 million Americans. Even 5% of a 200,000 acre-feet reservoir would fill 5,000 Olympic pools—or, enough for daily water use for 17 million Americans.
- 5% is also consistent with the D.C. Circuit’s interpretation of the Water Supply Act.¹ The D.C. Circuit recently found that a reallocation of 9% of the conservation storage pool at a federal reservoir “unambiguously constitute[d] the type of major operational change” for which congressional approval was required. The court noted that the 9% change from the status quo at issue in that case “would be the largest acre-foot reallocation ever undertaken by the Corps without prior Congressional approval.” If 9% is “unambiguously” across the line, then 5% is a very reasonable threshold for gauging when congressional authorization for local water use should be required.

¹ *Southeastern Fed. Power Customers, Inc. v. Geren*, 514 F.3d 1316 (D.C. Cir. 2008). While a federal court in Atlanta suggested that the Corps should have broader discretion under the WSA, the reasoning of the D.C. Circuit is the most compelling.

*NOTE: CBO has stated that budgetary implications of Section 2015 are negligible.

Fact-Checker: Section 2015 of WRDA

For more information, please contact Jeff Wood (Sessions); Lauren Sher (Nelson); Andrew Newton (Shelby); Sara Decker (Rubio).

1. Claim: Section 2015 would "deprive the federal treasury of funds."
 - **FACT:** CBO stated that Section 2015 would have negligible budget impacts.
2. Claim: Section 2015 will "prohibit" new water supply allocations.
 - **FACT:** Section 2015 does not prohibit new water supply allocations; it simply clarifies when congressional approval is required. According to CRS, Congress has authorized water supply usages at more than 90 Corps reservoirs. Moreover, Section 2015 only addresses allocations *under the Water Supply Act*—it does not alter other statutory authorities for allocating water supply such as project-specific authorizations, interstate water compacts, section 6 of the Flood Control Act, or other instances where Congress has approved water supply uses.
3. Claim: Section 2015 imposes "strict limits."
 - **FACT:** 5% is not a strict limit. For a reservoir like Lake Lanier near Atlanta, 5% is equivalent to the amount of water used in a day by 89 million Americans for toilets, showers, and drinking.
4. Claim: Section 2015 sets a 5% threshold that is "arbitrary."
 - **FACT:** This 5% threshold is rooted in court decisions and prior Corps practice. The U.S. Court of Appeals for the D.C. Circuit, in *Southeastern Federal Power Customers v. Geren*, 514 F.3d 1316 (D.C. Cir. 2008), stated that a 9% reallocation for water supply in that case was "unambiguously" the kind of change that requires congressional approval. The court found that its view was "reinforced by the Corps' prior consideration of reallocation proposals."
5. Claim: Section 2015 tries to overturn a decision by the federal appeals court in Atlanta regarding Lake Lanier.
 - **FACT:** Section 2015 does nothing to address whether Lake Lanier is authorized for water supply, as addressed by the federal appeals court in Atlanta. To the contrary, Section 2015 implements the separate D.C. Circuit Court of Appeals decision concerning the Water Supply Act. The majority of water supply usages at Lake Lanier will not be impacted by Section 2015.
6. Claim: Section 2015 "force[s] cash-strapped states and municipalities to build new projects that would not otherwise be needed, wasting billions of taxpayer dollars and resulting in significant, completely unnecessary environmental impacts."
 - **FACT:** In truth, the economic costs and environmental impacts of excessive, unauthorized withdrawals are already borne by downstream communities and families. For instance, with significantly reduced downstream flows to rivers in Alabama and the Apalachicola Bay in Florida caused directly by increased withdrawals for Atlanta-area municipal and industrial purposes, oyster harvesting in the bay has been severely damaged, economic development and hydropower in Alabama has been significantly reduced, and the ecological health of their rivers and bays have been degraded. In fact, downstream communities in Georgia are also harmed by Atlanta's continued, unauthorized withdrawals.
7. Claim: Section 2015 "would apply to every Corps and Bureau of Reclamation reservoir in the United States."
 - **FACT:** Most federal reservoirs have already been approved by Congress for water supply use or have water supply allocations far below the 5% threshold. Based on data in a recent CRS report, over 90% of Corps reservoirs would not have been impacted by Section 2015's 5% threshold if it had been part of the WSA since 1958, and as importantly, Congress has a tradition of approving reasonable water supply requests when merited.
8. Claim: This is about Alabama's and Florida's concerns with the "water wars" only.
 - **FACT:** As recognized in a recent CRS report, the Army Corps is considering an increasing number of water supply transfers around the country, which could mean less water for hydropower, navigation, recreation, agricultural irrigation, water quality, fish and wildlife conservation, and other uses of federal reservoirs, making this a NATIONAL CONCERN.
9. Claim: Congress should not get involved in this "state issue."
 - **FACT:** The Georgia delegation has introduced several bills in recent years to favor Atlanta in the "water wars" dispute. But unlike those Georgia legislative efforts, Section 2015 simply ensures that local water supply uses, such as those ongoing near Atlanta, are properly reviewed and approved by Congress, as has always been required under the Water Supply Act. With increasing demands on limited water resources, downstream communities and families across the nation need to know that massive water supply withdrawals from federal reservoirs will only occur when approved by Congress.



RICK SCOTT
GOVERNOR

May 8, 2013

The Honorable Bill Shuster
Chairman
Committee on Transportation and Infrastructure
2165 Rayburn Building
Washington, DC 20515

Dear Chairman Shuster:

The State of Florida needs your help with a very important environmental and socio-economic issue that is affecting the Apalachicola River and Bay in our state's panhandle.

Historically, the Apalachicola River and Bay have been important ecological and economic resources for this region of Florida, the state, and the nation. Generally, this region has provided greater than 90 percent of Florida's oyster harvest and close to 10 percent of the nation's oyster supply. The ecosystem, the fisheries, and the endangered species in this region need fresh water to survive, which drives economic growth for the region and the state. Unfortunately, the Apalachicola River and Bay have been deprived of adequate fresh water, in part, due to the management by the Army Corps of Engineers of the Buford Dam on Lake Lanier in north Georgia. As a result, this part of Florida is suffering an ecosystem and economic collapse.

The Army Corps of Engineers manages releases from the Buford Dam, which impact the water supply that feeds the Apalachicola River and Bay. Over time, the Corps has used its management authority over Buford Dam to hold water upstream and prevent fresh water that is essential to Apalachicola oysters, other commercial and recreational species, and endangered species from reaching the Apalachicola River and Bay. In fact, in 2012 oyster surveys and harvest landings were at historic lows, and the flows into the Apalachicola were at the lowest levels recorded since 1929, despite the fact that the amount of rainfall into the Apalachicola-Chattahoochee-Flint system was not the lowest recorded during that same time.

Mr. Chairman, Congress can help to fix this. As you prepare a Water Resource Development Act (WRDA) bill, I urge you to work with Florida's delegation to include legislation that allows adequate fresh water to reach the Apalachicola region by preventing

The Honorable Bill Shuster
May 8, 2013
Page Two

the Corps from performing a major reallocation of water supply from federally-authorized water supply projects like Lake Lanier without Congressional approval.

Sincerely,



Rick Scott

cc: The Honorable John Boehner, Speaker of the U.S. House of Representatives
The Honorable Bill Nelson, U.S. Senator
The Honorable Marco Rubio, U.S. Senator
The Honorable Gus Bilirakis, U.S. Representative, District 12
The Honorable Corrine Brown, U.S. Representative, District 5
The Honorable Vern Buchanan, U.S. Representative, District 16
The Honorable Kathy Castor, U.S. Representative, District 14
The Honorable Ander Crenshaw, U. S. Representative, District 4
The Honorable Ron DeSantis, U.S. Representative, District 6
The Honorable Ted Deutch, U.S. Representative, District 21
The Honorable Mario Diaz-Balart, U.S. Representative, District 25
The Honorable Lois Frankel, U.S. Representative, District 22
The Honorable Joe Garcia, U.S. Representative, District 26
The Honorable Alan Grayson, U.S. Representative, District 9
The Honorable Alcee Hastings, U.S. Representative, District 20
The Honorable John Mica, U.S. Representative, District 7
The Honorable Jeff Miller, U.S. Representative, District 1
The Honorable Patrick Murphy, U.S. Representative, District 18
The Honorable Richard Nugent, U.S. Representative, District 11
The Honorable Bill Posey, U.S. Representative, District 8
The Honorable Trey Radel, U.S. Representative, District 19
The Honorable Tom Rooney, U.S. Representative, District 17
The Honorable Ileana Ros-Lehtinen, U.S. Representative, District 27
The Honorable Dennis Ross, U.S. Representative, District 15
The Honorable Steve Southerland, U.S. Representative, District 2
The Honorable Debbie Wasserman-Schultz, U.S. Representative, District 23
The Honorable Daniel Webster, U.S. Representative, District 10
The Honorable Frederica Wilson, U.S. Representative, District 24
The Honorable Ted Yoho, U.S. Representative, District 3
The Honorable C.W. Bill Young, U.S. Representative, District 13



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0138

SEP 03 2010

Honorable Jeff Sessions
United States Senate
335 Russell Senate Office Building
Washington, DC 20510

Dear Senator Sessions:

You have written on two separate occasions concerning the National Environmental Policy Act ("NEPA") scoping report for the U.S. Army Corps of Engineers' ("Corps") update of the federal water control plans and manuals for the Apalachicola-Chattahoochee-Flint ("ACF") river basin, specifically with regard to the Corps' consideration of municipal and industrial water supply at the Lake Lanier/Buford Dam project ("Buford Project"). In addition to your inquiries, Senators Chambliss and Isakson wrote on July 27, 2010, raising questions with regard to the Corps' consideration of water supply alternatives in the ACF manual update process. Because these letters address similar issues, I am providing a substantively identical response to each Senator addressing the questions raised.

As a threshold matter, I assure you that the Corps' NEPA approach and the update to the water control plans and manuals is conceptually and legally sound. The Corps is updating its water control plans and manuals to account for changed conditions in the ACF basin, including hydrology, federal and non-federal improvements, growth and development, and changes in law, since the current manuals were last updated. The purpose and need for this federal action is to determine how the federal projects in the ACF system should be operated for their authorized purposes, in light of current conditions and applicable law, and to implement those operations through updated water control plans and manuals. In the NEPA analysis that informs this action, the Corps must study reasonable alternatives that could satisfy this purpose and need, including "the alternative of no action." The manual update is proceeding against the backdrop of litigation concerning the Corps' operation of federal reservoirs in the ACF basin. On July 17, 2009, the U.S. District Court for the Middle District of Florida issued an opinion and order addressing the Corps' authority to operate the Buford Project for water supply.

Prior to July 2009, the Corps had intended to evaluate, as one alternative that could satisfy the purpose and need of the water control manual update, operations for present levels of municipal and industrial water supply withdrawals from Lake Lanier and downstream of Buford Dam. However, the district court's order of July 17, 2009, led the Corps to reconsider this intention. The court held that water supply is not an authorized purpose of the Buford Project, and that the Army lacks authority to add water supply as a purpose by reallocating storage to accommodate present water supply withdrawals under the Water Supply Act. The court ordered that present water supply withdrawals from the reservoir must cease (apart from 10 million gallons per day by the Cities of Buford and Gainesville), and that "the required off-peak flow" from Buford Dam "will be 600 cfs" in July 2012. The court stayed this requirement for three years and provided that current water supply withdrawals "may continue" until July 2012, but the order makes clear that the Army must change its operations to comply with the court's direction at that time, and enjoins the Corps from reallocating any amount of storage in Lake Lanier for water supply, absent Congressional authorization.

Accordingly, the Corps has appropriately revised the scoping report to account for the court's ruling that water supply is not an authorized purpose of the Buford Project, and the court's direction that present operations at Buford Dam must change in 2012, with no reallocation of storage unless authorized by Congress. The scope of the Environmental Impact Statement ("EIS") for this water control manual update effort includes only alternatives that could reasonably be expected to satisfy the purpose and need of the proposed federal action—i.e., to implement, by July 2012, updated water control plans and manuals prescribing operations of federal reservoirs in the ACF basin for their authorized purposes and in compliance with applicable law, including the district court's order should it be unaffected by the pending appeals. No unilateral reallocation of storage by the Corps, whether to accommodate present levels of water supply withdrawals from the Buford Project, the future water supply use considered in the Draft Post-Authorization Change Report that was challenged in the complaint that spawned the current litigation in 1990, or any other amount, could lawfully be implemented under the court's order. No party has presented the Army or the Congress with a proposal to accommodate any level of water supply that enjoys the support of the three States and the other litigants, and it is unreasonable to assume that any such proposal, even if it could be conceived of, could be agreed to by all parties, studied, and authorized by Congress in time to be implemented by the court's 2012 deadline. The inability of all parties, after years of negotiations and millions of dollars expended on environmental, hydrological, and other studies, to reach a comprehensive agreement is what led Secretary Geren to direct the Corps in 2008 to proceed with updating the water control manuals in the absence of such agreement. Therefore, as explained in the March 2010 Revised Final Scoping Report, the Corps proposes to implement updated manuals that will prescribe operations of all federal ACF reservoirs for their authorized purposes. The Army will not use the process of updating the ACF water control manuals to propose or study any potential reallocation of storage for water supply that would violate that the district court's July 17th order, provided the order is unaffected by appeals, and could not be implemented by 2012.

Nonetheless, Council on Environmental Quality ("CEQ") regulations implementing NEPA require the Corps to study, as one alternative to the proposed federal action, "the alternative of no action." When, as in this case, the proposed action involves updating a management plan or program, CEQ guidance states that "'no action' means 'no change' from current management direction or level of management intensity." Memorandum to Agencies: Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations (March 23, 1981). This guidance states more specifically:

[T]he regulations require the analysis of the no action alternative even if the agency is under a court order or legislative command to act. This analysis provides a benchmark, enabling decisionmakers to compare the magnitude of environmental effects of the action alternatives. It is also an example of a reasonable alternative outside the jurisdiction of the agency which must be analyzed.

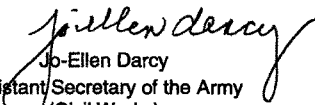
Thus, even with the July 17, 2009, ruling in place, current operations constitute the appropriate "no action alternative" to evaluate in the EIS for the water control manual updates. The fact that the Corps is studying the environmental consequences of current operations as the no action alternative for NEPA purposes does not, however, mean that those operations can or will be continued. On this point, the court's order is very clear: current operations for water supply at Lake Lanier cannot remain in place past the court's 2012 deadline.

Although the Army is presently preparing to implement updated water control manuals that will conform to the district court's order, assuming that it withstands appeal, I remain hopeful that the three States will resolve their dispute over the allocation of waters in the ACF basin. Throughout the long history of that dispute, the Army has continually asserted its willingness to facilitate, to the extent allowed by law, any comprehensive agreement supported by the three States and the other litigants, and I repeat that commitment to you now. If the parties were to agree on a comprehensive resolution of the dispute, if Congress were to authorize storage for water supply as a purpose of the Buford Project, or if the district court order is reversed on appeal, the Army could consider a broader range of alternative operating schemes appropriate to those circumstances.

In summary, the Corps has revised the scope of its efforts to update the ACF water control plans and manuals by proposing to implement updated manuals that conform to the district court's order when it goes into full effect in July 2012, assuming that the district court order is unaffected by the pending appeals. As part of those efforts, the Corps is also evaluating a "no action alternative"—in which current operations would continue, without the Corps taking action to adjust them—because that is what federal law requires. As always, the Army stands ready to adjust the operation of its ACF projects, within the limits of its legal authority, to accommodate any allocation of waters within the basin upon which the three States agree. Naturally, my response today is given against the backdrop of the existing district court order, and should that order be modified on appeal, the Army will take that appellate decision into account.

I appreciate your continued interest in and support for the Army Civil Works program.

Very truly yours,


Jo-Ellen Darcy
Assistant Secretary of the Army
(Civil Works)

Congress of the United States
Washington, DC 20510

April 11, 2012

Honorable Jo-Ellen Darcy
 Office of the Assistant Secretary (Civil Works)
 Department of the Army
 108 Army Pentagon
 Washington, D.C. 20310-0108

Re: Alabama-Coosa-Tallapoosa (ACT) River Basin

Dear Secretary Darcy:

We write to express our concern about the continuing failure of the U.S. Army Corps of Engineers to enforce the terms of the 1963 contract between it and the Cobb County-Marietta Water Authority (CCMWA) pertaining to water-supply usage of Lake Allatoona. CCMWA's illegal exceedance of the contract's limits results in less water flowing into Alabama, which damages Alabama and its citizens.

The contract entitles CCMWA to use storage at Lake Allatoona for water supply totaling 13,140 acre-feet, which equates to approximately 22 million gallons per day on an annual average basis based upon current critical-yield analysis. CCMWA has consistently breached that contract by utilizing far more storage than the contractually authorized amount. CCMWA's withdrawals have been as high as approximately 50 million gallons per day on an annual average basis, and the storage space needed to support those withdrawals is at least 29,547 acre-feet. That is 224% of the contractually authorized amount.

On September 6, 2007, our delegation met with your predecessor, the Secretary of the Army, the Chief of Engineers, and senior Corps officers in Senator Shelby's office. During that meeting, we were assured that the Corps believes that limits contained in the contracts to which it is a party must be followed.

On November 2, 2007, the Corps' District Engineer sent a letter to CCMWA advising it that the Corps' "preliminary calculations indicate that CCMWA has substantially exceeded the storage allocation provided in the water supply storage contract."

In a letter to the District Engineer dated November 19, 2007, CCMWA admitted that it "first notified the Corps that its gross withdrawals were exceeding 34.5 mgd in the mid-1980s."¹ CCMWA claimed that this was not a problem because it should be entitled

¹ The contract estimated the yield of the allocated storage amount as 34.5 mgd. A subsequent update of the critical-yield for Lake Allatoona has established that the allocated storage amount only yields approximately 22 mgd.

Honorable Jo-Ellen Darcy
April 11, 2012
Page 2

to count return flows to Lake Allatoona in calculating whether it had exceeded the contract amount.

CCMWA's letter ignored the Corps' earlier rejection of its contention that return flows can be counted. On October 17, 1989, Corps headquarters, acting through the Chief of the Policy and Planning Division of the Directorate of Civil Works, informed the Commander of the Corps' South Atlantic Division that, consistent with the Corps' national policy, return flows would not be credited. By letter dated February 26, 1990, the Corps expressly informed CCMWA of this determination.

Even though CCMWA was told more than 22 years ago that it could not obtain a credit for return flows, it has continued to violate its contract limits throughout that entire period, continually insisting that it should be given credit for return flows.

Given that more than four years have passed since CCMWA admitted to the District Engineer that its gross withdrawals were in excess of the contract limit and had been in excess for more than 20 years, Alabama's Governor Robert Bentley raised the issue during a meeting in Montgomery last month with General Todd Semonite, the current commander of the Corps' South Atlantic Division.

The response that General Semonite gave to Governor Bentley is disturbing. General Semonite informed Governor Bentley that the Corps was not taking action to enforce the limits of CCMWA's contract because the Corps was assessing its national policy on credits for return flows. Governor Bentley noted that the Corps had already performed that analysis in 1989, which General Semonite acknowledged.

The purported evaluation of the national policy on credits for return flows is a thinly veiled attempt to evade the Corps' commitment to us that it would enforce the provisions of its contracts. When the Corps told CCMWA 22 years ago that it would not receive credit for return flows, that should have been the end of the matter. CCMWA brazenly ignored that determination, and the Corps' is now rewarding and prolonging that illegal conduct by reevaluating a determination that has already been made. The fact that the "reevaluation" has been going on for more than four years with no end in sight only underscores that this is a pretext for allowing CCMWA to take whatever water it wants from Lake Allatoona regardless of the contract limits. There is no basis whatsoever for the Corps to change its national policy; indeed, alteration of that policy would disrupt settled expectations of communities dependent on reliable river flows across the nation.

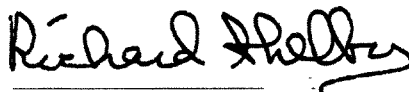
You and your predecessor have repeatedly assured us that the Corps will not favor Georgia in connection with the dispute between Alabama and Georgia over the ACT River Basin. However, General Semonite's comments to Governor Bentley again make us question the Corps' commitment to impartiality. CCMWA's violation of its contract is crystal clear, and we certainly would not expect the Corps to refuse to enforce that binding agreement.

Honorable Jo-Ellen Darcy
April 11, 2012
Page 3

We request that you and General Bostick meet with our delegation to discuss this issue as soon as possible. Please contact Alan Hanson in Senator Shelby's office to schedule the meeting.

We look forward to hearing from you.

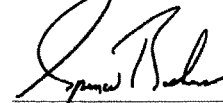
Very truly yours,



Richard Shelby
U.S. Senator



Jeff Sessions
U.S. Senator



Spencer Bachus
U.S. Representative



Robert Aderholt
U.S. Representative



Jo Bonner
U.S. Representative




Mike Rogers
U.S. Representative



Martha Roby
U.S. Representative



Mo Brooks
U.S. Representative



Terri Sewell
U.S. Representative

cc: Governor Robert Bentley



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

MAY -9 2012

Honorable Jeff Sessions
United States Senate
326 Russell Senate Office Building
Washington, D.C. 20510

Dear Senator Sessions:

This is in response to your letter dated April 11, 2012, co-signed by eight other members of the Alabama Congressional delegation, regarding water supply storage usage at Lake Allatoona by the Cobb County-Marietta Water Authority. I apologize for the delay in responding.

LTG Bostick and I will be happy to meet with the delegation to discuss the issues raised in your letter. I will have my staff contact Mr. Hanson on Senator Shelby's staff to schedule a meeting.

An identical letter is being provided to each of the other members of the delegation. I look forward to meeting with you soon.

Very truly yours,

A handwritten signature in black ink that reads "Jo-Ellen Darcy".

Jo-Ellen Darcy
Assistant Secretary of the Army
(Civil Works)



United States Senate
WASHINGTON, DC 20510-0005

October 12, 2012

The Honorable Jo Ellen Darcy
Assistant Secretary (Civil Works)
Department of the Army
108 Army Pentagon
Washington, DC 20310-0108

Lt. General Thomas P. Bostick
Chief of Engineers
U.S. Army Corps of Engineers
441 G Street NW
Washington, DC 20314-1000

Dear Secretary Darcy and Lt. General Bostick:

We are writing concerning the Corps announcement that it will restart the process of updating the water control manuals for the Apalachicola-Chattahoochee-Flint (ACF) River Basin.

First, we continue to expect the Corps to adhere to its pledge of neutrality during this process. We believe the responsibility for achieving a permanent resolution of the controversy rests with the three governors.

Second, we are concerned that the Corps is increasingly exceeding the limits of its discretion to reprioritize water project purposes without the involvement of Congress. In updating the manual, the Corps must not make material changes to the uses for specific purposes of water resources projects. That is the proper domain of the Congress, not the Corps.

Finally, the Corps noted in June that it has not made a final decision on the operation of the ACF but will do so at the conclusion of this manual update process and after a National Environmental Policy Act (NEPA) analysis is complete. We would strongly encourage the Corps to hold a robust public notice and comment process and to give full and careful consideration to the comments and concerns of our respective States and other stakeholders who depend upon reliable downstream flows. Until the Corps completes this public process, we fully expect there will be no substantive changes to the operation of ACF system.

Please keep us apprised as the process of updating the water control manuals continues.

Sincerely,



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

JAN 18 2013

Honorable Jeff B. Sessions III
United States Senate
326 Russell Senate Office Building
Washington, D.C. 20510

Dear Senator Sessions:

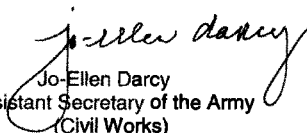
I am responding to your letter dated October 12, 2012, addressed to Lieutenant General Bostick and me and co-signed by Senators Shelby, Nelson, and Rubio, regarding the Corps' restarting of the process to update the water control plans and manual for the Apalachicola-Chattahoochee-Flint (ACF) River Basin. I apologize for the delay in responding.

Let me assure you the U.S. Army Corps of Engineers (Corps) will continue to remain objective, open, and collaborative throughout the process of updating the water control plans and manual. The Corps' goal is to develop the best possible operational plans and manual to meet the Congressionally-authorized purposes for the individual projects and for the ACF basin as a system. Final decisions regarding operation of the system and the individual projects will be consistent with all applicable laws, including the congressional authorizations for the ACF projects and the National Environmental Policy Act.

This update process has undergone several iterations as a result of litigation in the Federal courts. The Corps has solicited and given careful consideration to all comments received in prior public comment periods, and will do the same for comments received in the "scoping" public comment period recently held for this action.

Thank you for your interest in the Army Civil Works Program. I am particularly cognizant of the sensitivities associated with the Corps' operation of the ACF basin and, equally as important, I fully respect the critical role that each state Governor has and must play in permanently resolving the water allocation issues that have existed now for almost two decades. An identical letter is being provided to each co-signer of your letter.

Very truly yours,


Jo-Ellen Darcy
Assistant Secretary of the Army
(Civil Works)



May 30, 2013

VIA U.S. MAIL AND E-MAIL TO
ACT-WCM@USACE.ARMY.MIL

Colonel Steven J. Roemhildt
Commander, Mobile District
U.S. Army Corps of Engineers
ATTN: PD-EI (ACT-DEIS)
P.O. Box 2288
Mobile, Alabama 36628

Re: Draft Master Water Control Manual Update and Draft Environmental Impact Statement (DEIS) for the Alabama-Coosa-Tallapoosa (ACT) River Basin

Dear Colonel Roemhildt:

The U.S. Army Corps of Engineers recently published a Draft Water Control Manual and Draft Environmental Impact Statement for the Corps' operations on the Alabama-Coosa-Tallapoosa River System. This letter provides the comments of Manufacture Alabama. Manufacture Alabama is the state's only association dedicated exclusively to the competitive, legislative, regulatory and operational interests of manufacturers in Alabama and their partners. Manufacture Alabama represents all of the pulp & paper mills in the state including Georgia Pacific, International Paper and Resolute Forest Products, who all have plants located on the ACT River System. Manufacture Alabama also represents the chemical industry who also have plants located on the ACT River System.

Alabama residents, including Manufacture Alabama members, depend on releases from the Corps' two storage reservoirs in the ACT River System, namely, Lake Allatoona and Carters Lake. Those two reservoirs are substantial contributors to Coosa River inflow. The volume and time of year of releases from those two lakes are critically important.

We understand that the Corps' proposal reduces so-called navigation flows and releases for hydropower production during the late summer and fall, when those flows are most needed downstream. The Corps disclaims responsibility for navigation flows, saying that Allatoona and Carters "are not regulated specifically for navigation." DEIS at 4-7. However, elsewhere, the Corps acknowledges that the two reservoirs were built to support navigation. DEIS at 2-23, 2-28. It seems obvious that greater releases upstream would provide more flow downstream, and it is the Corps' statutory mission to provide for navigation. It is unreasonable for the Corps to withhold its own stored water and place the entire burden of navigation support on the lakes of

Comments of Manufacture Alabama
May 30, 2013
Page 2

Alabama. Without the Corps' support, there will be less water in the Coosa River downstream, and stakeholders in Alabama will suffer.

Similarly, the Corps proposes to reduce hydropower releases from Allatoona and Carters during the dry season, opting instead to keep those lakes fuller for local recreation and Atlanta-area water supply. However, the same flows that turn the hydropower turbines are important for stakeholders on the Coosa River.

The Corps asserts that the water quality impacts of its proposal would be "minimal," but as the Corps acknowledges, "Water management activities may affect water quality under low flow conditions such that the state regulatory agencies may consider reevaluation of NPDES permits to confirm the system's assimilative capacity." DEIS at ES-48 – ES-49. The Corps also acknowledges negative impacts in Alabama for particular constituents and conditions. DEIS at ES-49. We disagree that those water quality impacts are "minimal." Low flow conditions typically occur in the dry months. That is when flow augmentation is most needed downstream, and it is also when the Corps proposes to withhold water for local recreation and supply.

The Corps seems to suggest that the only consequence of a negative water quality impact is a bureaucratic adjustment of permit limits. That is not accurate. If the Coosa River's assimilative capacity is reduced to the point that permit limits are implicated, that places any regulated facility's operations at risk. If operations slow or cease, that means less payroll for the local economy. Further, as the Corps' lack of support for downstream stakeholders becomes apparent, that limits our ability to recruit new businesses and industries to the state.

We understand the current proposal mainly involves issues of flow. However, aside from navigation flows, to restore actual commercial navigability on the Alabama River would provide Alabama an important tool for business recruitment. We urge the Corps to support commercial navigation with both adequate flow and a renewed program of channel maintenance.

In closing, we urge the Corps to reconsider its preferred alternative and operate its storage reservoirs as they were originally intended, which is to supplement flows during the times of year when they are the most scarce. Stakeholders downstream are counting on it.

Thank you for your consideration of these comments. Please feel free to contact me if you should have any questions or comments.

Sincerely,



President
Manufacture Alabama

May 31, 2013

VIA E-MAIL TO
ACT-WCM@USACE.ARMY.MIL

APPCO
Comments

Colonel Steven J. Roemhildt
Commander, Mobile District
U.S. Army Corps of Engineers
ATTN: PD-EI (ACT-DEIS)
P.O. Box 2288
Mobile, Alabama 36628

**Re: Draft Master Water Control Manual Update and Draft Environmental Impact Statement (DEIS)
for the Alabama-Coosa-Tallapoosa (ACT) River Basin**

Dear Colonel Roemhildt:

The U.S. Army Corps of Engineers recently published a Draft Water Control Manual and Draft Environmental Impact Statement for the Corps' operations on the Alabama-Coosa-Tallapoosa River System. This letter provides the comments of The Alabama Pulp & Paper Council (APPCO). The council deals with legislative, and regulatory interests of 13 pulp and paper manufacturers in Alabama. Five of these large facilities are located on the ACT system and are dependent on its flow for water supply and waste water assimilation. These five are Resolute Forest Products at Childersburg, three International Paper facilities at Prattville, Selma, and Pine Hill, and Alabama River Cellulose (Georgia Pacific) at Monroeville.

The flow at these facilities is dependent on releases from the Corps' two storage reservoirs in the ACT River System, namely, Lake Allatoona and Carters Lake. Those two reservoirs are substantial contributors to Coosa River inflow. The volume and time of year of releases from those two lakes are critically important. The Corps proposal reduces hydropower releases from Allatoona and Carters during the dry season, opting instead to keep those lakes fuller for local recreation and Atlanta-area water supply.

The Corps proposal is such that flows at Rome will be 250-500 cfs lower in the fall months of the year under the Preferred Alternative and that lake levels at Lake Allatoona will be "notably higher" in the fall months under drought conditions. During the drought of 2007, Alabama experienced major water quality and other environmental problems in the ACT Basin during the fall months. Indeed, some of these mills were on the verge of having to shut down operations and lay off employees because they were close to being unable to meet permit limits with their discharges. The Corps was part of meetings and weekly phone conferences that addressed the issue of adequate downstream flows. A reduction in flow in the Coosa River at the Alabama state line by 250-500 cfs will almost certainly cause far graver environmental and economic consequences than have been experienced during prior similar droughts.

The Corps asserts that the water quality impacts of its proposal would be “minimal,” but as the Corps acknowledges, “Water management activities may affect water quality under low flow conditions such that the state regulatory agencies may consider reevaluation of NPDES permits to confirm the system’s assimilative capacity”. The Corps also acknowledges negative impacts in Alabama for particular constituents and conditions. The water quality impacts are not likely to be “minimal.” Low flow conditions typically occur in the dry months. That is when flow augmentation is most needed downstream, and it is also when the Corps proposes to withhold water for local recreation and supply.

The Corps seems to suggest that the only consequence of a negative water quality impact is a bureaucratic adjustment of permit limits. That is not accurate. If the Coosa River’s assimilative capacity is reduced to the point that permit limits are implicated, that places any regulated facility’s operations at risk. If operations slow or cease, that means less payroll for the local economy.

In closing, it is inconceivable that the Corps would even consider holding water in Alatoona/Carter for “recreational” purposes given the downstream concerns for water quality and how it relates to our paper mill jobs. We urge the Corps to reconsider its preferred alternative and operate its storage reservoirs as they were originally intended, which is to supplement flows during the times of year when they are the most scarce. Stakeholders downstream are counting on it.

Thank you for your consideration of these comments. Please feel free to contact me if you should have any questions or comments:

Sincerely,

Roy McAuley
Executive Director
Alabama Pulp & Paper Council
401 Adams Ave., Suite 710
Montgomery, AL 36104
334 -386-3000 office
334-313-3893 cell
roy@manufacturealabama.org



March 5, 2012

VIA OVERNIGHT DELIVERY

Colonel Steven J. Roemhildt
Commander, Mobile District
U.S. Army Corps of Engineers
109 St. Joseph Street
Mobile, Alabama 36602

Re: Joint Study of ACF Flows by Apalachicola Riverkeeper and Tri Rivers Waterway Development Association

Dear Colonel Roemhildt:

Apalachicola Riverkeeper (Riverkeeper) and Tri Rivers Waterway Development Association (Tri Rivers) understand the Mobile District of the U.S. Army Corps of Engineers (Corps) continues its efforts to update the Water Control Manual for the Apalachicola-Chattahoochee-Flint (ACF) River Basin (Master Manual). In that context, we are pleased to provide information that will enhance the Corps' ability to fulfill the purposes of the ACF River Basin with greater efficiency and effectiveness. We urge the Corps to review this information and use it in the course of updating the Master Manual.

Riverkeeper is dedicated to protection of the Apalachicola River and Bay ecosystem environmental and natural resources, recreation, and the sustainability of natural resource based economies primarily in the Apalachicola River watershed. Tri Rivers seeks to advance the authorized uses of this Federal Water Way System including navigation and hydroelectric power, and other important uses including economic development, recreation, environmental stewardship, and water quality primarily in the middle Chattahoochee and Flint Rivers.

In the past, representatives of the lower and middle portions of the ACF River Basin have advocated different views regarding ACF management issues. However, for over three years, Riverkeeper and Tri Rivers have supported a joint effort to work cooperatively to determine management strategies in the ACF Basin that will provide sustainable conditions in environmental, economic, and social aspects of the basin. We have also undertaken a project funded in part by the U.S. Department of Agriculture (USDA) to analyze flows in the

APALACHICOLA RIVERKEEPER

A Non-Profit Organization Dedicated to the Protection and Stewardship of the Apalachicola River and Bay

232-B Water Street / Post Office Box 8
Apalachicola, Florida 32329 / 850.653.8936
Riverkeeper@ApalachicolaRiverkeeper.org

TRI RIVERS WATERWAY DEVELOPMENT ASSOCIATION

Promoting the Effective Development, Utilization and Maintenance of the Apalachicola-Chattahoochee-Flint Inland Waterway and River System

630 East Broad Street
Eufaula, Alabama 36027
(334) 688-1000 / (334) 695-1878 / bhoustonacf@bellsouth.net

Colonel Steven J. Roemhildt
 March 5, 2012
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Apalachicola-Chattahoochee-Flint River Basin and identify operational alternatives that may enhance the economic well being of all ACF stakeholders. We have found some common ground in providing a navigation channel using flow augmentation that given appropriate timing, frequency, and duration can also benefit the environment and natural resources in the Apalachicola Basin.

We have provided a copy of the study for your review and would like to meet with you to discuss how these results can be incorporated into the development of the updated Water Control Manual. In essence, the study demonstrates that there exist operational parameters that support a reasonable schedule for navigation and also provide significant benefits for environmental values on the Apalachicola, including more frequent and longer floodplain inundation events compared to operations under the Revised Interim Operations Plan. Our work leads us to believe that the operational changes to achieve those benefits would be very manageable and provide significant economic opportunity in the lower part of the basin as well as meeting partially the authorized use of navigation in the system.

The range of operational possibilities made possible through our analysis is realistic. The report acknowledges limits on the Corps' ability to manipulate flow to provide for navigation under certain conditions:

- Limited inflow: There are times when inflow is insufficient to provide reasonable options for floodplain inundation and navigation support. At other times, flows are sufficient to serve all interests without significant operational changes. Overall the study proposes that flows can be augmented up to 3,000 cfs when local inflows are in a range approximating the flow needed to provide a channel (between 14,000 and 21,000 cfs).
- Competing needs: We recognize and understand that this will effect reservoir operations and uses but believe that the effects can be tolerable without compromising storage capacity in upstream reservoirs. The study also considers multiple purposes of the ACF system and the broad range of interests who depend on the availability of water thru out the Chattahoochee portion of the System. To account for various interests throughout the ACF River Basin, we have analyzed the impacts of operational alternatives to elevations at the Corps' four storage reservoirs as well as flows as measured at key locations from Peachtree Creek to Blountstown.
- Limits on navigation availability: We recognize that within the range of reasonably likely inflow scenarios, provision of a year-round navigation channel that is 9 feet deep and 100 feet wide is impracticable, if not impossible. Our work provides the basis to select a range of management options that provides a reasonable basis to provide for navigation on a more limited basis, taking into account shippers, environmental values, and other ACF stakeholders.
- Limits on consumption: Increases in consumptive uses compared to current levels may reduce the flows available to the Corps to fulfill project purposes. Accordingly, we also

Colonel Steven J. Roemhildt
 March 5, 2012
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have provided scenarios showing the effects of a range of consumption increases over time.

We do not purport to provide a comprehensive navigation maintenance plan at this time. Nevertheless, Riverkeeper and Tri Rivers agree that the WCM should evaluate utilization and maintenance of a navigation channel in the following areas:

1. Flow augmentation to provide a navigation channel is feasible and offers an additional benefit to protect environmental resources. Examination of channel depth and flow relationships will be required.
2. Limited dredging is a potentially useful tool, in that it allows for greater availability of navigation for similar flow augmentation regimes if accomplished in an environmentally sound manner. We have examined limited "dredging" and "non-dredging" scenarios and feel careful examination and development of reference profiles are necessary to accurately evaluate the volume of dredging associated with different flow levels so consideration of maintenance activities can be evaluated.
3. The Corps should evaluate channel maintenance alternatives and may do so within a relatively narrow range of inflow scenarios, where incremental shifts in the Corps' operations can make the most difference. This type of evaluation may require additional model development or runs.

The approach taken in this project incorporates two particularly practical steps we recommend that the Corps emulate in the Water Control Manual update:

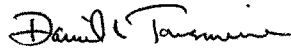
1. Clearly lay out what are the performance measures for judging different options
2. Consider a robust array of alternatives and perform sensitivity analyses among the alternatives

In working together on this project, we have identified and acknowledged the real and significant benefits and drawbacks for each of our organizations in undertaking this endeavor. Riverkeeper continues to have reservations about the manner and location of both dredging activity and the deposition of dredged material. Tri Rivers remains concerned about providing for navigation with less availability than the full extent authorized by Congress. Nevertheless, we believe that our cooperative efforts have been fruitful in developing an approach to viable alternatives that will assist the Corps in developing an operations plan that provides better outcomes for both environmental values and commercial navigation, with minimal and manageable impacts to others.

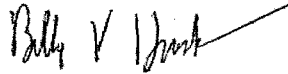
Colonel Steven J. Roemhildt
March 5, 2012
Page 4

Thank you for your consideration. Please feel free to contact us if you should have any questions or comments. We look forward to meeting with you in the near future and will be in contact with you to determine a convenient time to discuss this report.

Sincerely,



Dan Tonsmeire
Apalachicola Riverkeeper



Billy Houston
Tri Rivers Waterway Development Association

2 NORTH JACKSON MONTGOMERY, ALABAMA 36104	P.O. BOX 76 MONTGOMERY, ALABAMA 36101-0076	334-834-6000 FAX: 334-262-7371 www.bcaltoday.org
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BUSINESS COUNCIL
OF ALABAMA

May 31, 2013

VIA U.S. Mail & E-Mail

Colonel Steven J. Roemhildt
U.S. Army Corps of Engineers
Mobile District
Attention: PD-EI (ACT-DEIS)
P.O. Box 2288
Mobile, AL 36628
act-wcm@usace.army.mil

**Re: Draft Environmental Impact Statement
Update of the Alabama-Coosa-Tallapoosa River Basin Water Control Manual**

Dear Colonel Roemhildt:

The Business Council of Alabama (BCA) appreciates this opportunity to submit comments on the above referenced Draft Environmental Impact Statement (DEIS). The Business Council of Alabama is Alabama's foremost voice for business. The BCA is a non-partisan statewide business association representing the interests and concerns of nearly one million working Alabamians through its member companies and its partnership with the Chamber of Commerce Association of Alabama. BCA is Alabama's exclusive affiliate to the U.S. Chamber of Commerce and the National Association of Manufacturers.

BCA's members are directly affected by water management decisions implemented by the Corps of Engineers. These members depend on adequate water resources and will be impacted if the Corps operations trigger drought conditions more often and if the Corps operations diminish water quality.

The Corps response to the lower flows during drought conditions under the proposed alternative is that "[w]ater management activities may affect water quality under low flow conditions such that the state regulatory agencies may consider reevaluation of NPDES permits to confirm the system's assimilative capacity." (DEIS p. 6-112, and DEIS Executive Summary p. ES-48). However, the USACOE does not include this consideration as a part of their evaluation of the proposed alternative and does not include the potential costs to NPDES permit holders of complying with new restrictive permit limitations.

Under the discussion of Mitigation the Corps states:

"Reevaluation of wasteload allocations from point sources in the upper Coosa River and Alabama River may be appropriate to ensure that current discharge permits do not violate water quality standards when in-stream flow changes from the No Action Alternative. Georgia EPD and ADEM base discharge permits on 7Q10 conditions; the system's 7-day minimum flow from the previous 10-year period. In some permits, restrictions are placed on discharges during low-flow conditions. Georgia EPD and ADEM may determine that it would be appropriate to reevaluate stream flows in the upper Coosa River and Alabama River to ensure that NPDES permitted facilities do not violate water quality standards under extreme low-flow conditions. Some current NPDES permits limit or restrict discharges during low-flow conditions similar to what occurred in 2007. The water quality model developed during this EIS made assumptions regarding point source discharges that might not apply during low-flow conditions. The states may elect to update NPDES permits to limit discharges during certain in-stream flow conditions." (DEIS p. 6-196, and DEIS Executive Summary p. ES-70).

This reevaluation of 7Q10 flows is clearly within the responsibility of the USACOE as a part of their evaluation of the alternatives under NEPA. (40 CFR Part 1502.23). The cost of this evaluation should not be placed on the State of Alabama and the cost of any subsequent changes in NPDES permits must be considered as a part of the alternatives analysis.

It is inappropriate for the Corps to not fully consider the impacts of its proposed action and to simply place the burden of diminished water quality on current and future NPDES permit holders.

Thank you for the opportunity to provide these comments. Please do not hesitate to contact us if you have any questions or require any additional information.

Sincerely,



William J. Canary
President and CEO
Business Council of Alabama

cc:

Alabama Office of Water Resources - Brian.Atkins@adeca.alabama.gov

Alabama Department of Environmental Management - llefleur@adem.state.al.us

LANCE R. LEFLEUR
DIRECTOR



Alabama Department of Environmental Management
adem.alabama.gov
1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ■ FAX (334) 271-7950
May 29, 2013

ROBERT J. BENTLEY
GOVERNOR

Colonel Steven J. Roemhildt, Commanding Officer
U.S. Army Corps of Engineers, Mobile District
ATTN: PD-EI (ACT-DEIS)
Box 2288
Mobile, AL 36628-001

Dear Colonel Roemhildt:

The Alabama Department of Environmental Management (ADEM) is pleased to provide the following comments and supporting data regarding the Draft Environmental Impact Statement (DEIS) prepared by the Mobile District of the United States Army Corps of Engineers (USACOE) pursuant to the National Environmental Policy Act (NEPA) for proposed modifications to the Water Control Manual for the Alabama-Coosa-Tallapoosa (ACT) River basin. As the environmental regulatory agency for the State of Alabama, ADEM ensures that activities which have the potential to impact Alabama's surface waters do not cause or contribute to violations of the State's water quality standards found in ADEM Administrative Code Chapter 335-6-10 (Attachment 1). In that regard, the following comments will primarily address impacts to water quality resulting from the proposed alternative and statements in the DEIS related to those impacts. ADEM believes that the USACOE has obligations under the NEPA, the Federal Water Pollution Control Act (Clean Water Act), and the USACOE's own regulations which are not adequately addressed in the DEIS.

1. The USACOE's proposed alternative must comply with the Clean Water Act and USACOE regulations.

Section 101. (b) of the Clean Water Act states, in part: "It is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this Act."

In addition, Section 313. (a) states, in part: "Each department, agency, or instrumentality of the executive, legislative, and judicial branches of the Federal Government (1) having jurisdiction over any property or facility, or (2) engaged in any activity resulting, or which may result, in the discharge or runoff of pollutants, and each officer, agent, or employee

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S. W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)



Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2583 (FAX)

Mobile-Corona
4171 Coronado Drive
Mobile, AL 36615-1421
(251) 432-8533
(251) 432-8598 (FAX)

thereof in the performance of his official duties, shall be subject to, and comply with, all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution in the same manner, and to the same extent as any nongovernmental entity including the payment of reasonable service charges. The preceding sentence shall apply (A) to any requirement whether substantive or procedural (including any recordkeeping or reporting requirement, any requirement respecting permits and any other requirement, whatsoever), (B) to the exercise of any Federal, State, or local administrative authority, and (C) to any process and sanction, whether enforced in Federal, State, or local courts or in any other manner. This subsection shall apply notwithstanding any immunity of such agencies, officers, agents, or employees under any law or rule of law."

Federal regulations at 40 CFR §130.12 (c) state: "Each department, agency or instrumentality of the executive, legislative and judicial branches of the Federal Government having jurisdiction over any property or facility or engaged in any activity resulting, or which may result, in the discharge or runoff of pollutants shall comply with all Federal, State, interstate and local requirements, administrative authority, and process and sanctions respecting the control and abatement of water pollution in the same manner and extent as any nongovernmental entity in accordance with section 313 of the CWA."

Furthermore, Title 22, Section 22-22-1 *et seq.*, Code of Alabama 1975, includes as its purpose "...to conserve the waters of the State and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses; to provide for the prevention, abatement and control of new or existing water pollution; and to cooperate with other agencies of the State, agencies of other states and the federal government in carrying out these objectives." (ADEM Administrative Code Chapter 335-6-10).

Under ADEM Administrative Code Chapter 335-6-10, ADEM has promulgated water quality standards, including narrative and numeric criteria, to "protect, maintain and improve the quality" of the waters of the State of Alabama. *Id.*

Corps regulations mandate that "Federal facilities shall comply with all Federal, state, interstate, and local requirements in the same manner and extent as other entities." ER 1110-2-8154 at 2 (Water Quality and Environmental Management for Corps Civil Works Projects). Through these regulations, the USACOE has committed "to develop and implement a holistic, environmentally sound water quality management strategy for each project." *Id.* The regulations recognize that "the management of [Corps] projects affects environments distant from [their] property boundaries and is influenced by actions of others also distant from [their] properties." *Id.* Thus, the regulations dictate that "Corps management responsibilities extend throughout the area influenced by and influencing the water" that the Corps manages. "The thrust of [the Corps'] policy is to protect all existing and future uses including assimilative capacity, aquatic life, water supply, recreation, industrial use, hydropower, etc." *Id.*

Section 8 of the regulation describes the management of USACOE projects and states, in part:

Divisions should adopt and implement the following general water quality management objectives for all Corps water resources projects:

a. Ensure that water quality, as affected by the project and its operation, is suitable for project purposes, existing water uses, and public health and safety and is in compliance with applicable Federal and state water quality standards."

...

k. Ensure that the project and its operation offer the lowest stress possible to the aquatic environment.

ER 1110-2-8154 at 3-4.

The USACOE's proposed action fails to comply with the foregoing obligations of the Corps. The DEIS details numerous adverse downstream environmental impacts that will result from lower flows under the preferred alternative. Rather than complying with its obligation to "protect all existing and future uses including assimilative capacity," the Corps suggests that the State will dictate that existing permit holders must restrict their discharges in order to alleviate the impacts of the Corps' proposed action. ADEM submits that the Corps is obligated to comply with its own regulations and other applicable law to protect existing uses and to avoid causing or contributing to adverse downstream environmental conditions.

2. The USACOE's proposed alternative (Plan G) will result in reduced river flow into Weiss Lake during critical water quality periods. The reduced flows will cause or contribute to violations of Alabama's water quality standards. (ADEM Administrative Code Chapter 335-6-10).

Reduced flows downstream of the Carters and Allatoona Projects will have adverse environmental impacts and are not insignificant as characterized by the Corps. The USACOE states: "Operational changes at upstream Corps projects included as part of the Proposed Action Alternative, particularly the water management measure to reduce hydropower generation at Allatoona Lake during the fall drawdown period, would somewhat shift releases in time over the period from September through December. However, on the basis of model runs over the 70-year period of record, those adjustments result in slightly lower flow in the Coosa River at Rome, Georgia, during the September to November period." (DEIS p. 6-58). The USACOE concludes that this lowering of flow in the Coosa River would be insignificant. However, that conclusion is based on a faulty analysis of impacts to downstream water quality resulting from the proposed water management changes

at Allatoona Lake. Most significantly, the analyses performed by the USACOE do not include the use of a calibrated water quality model but rely instead on predictions by the HEC-5Q water quality model (with flow input from the HEC-ResSim reservoir operations model) of the 5th percentile, 95th percentile, and median conditions under historical and alternative operations.

The monthly 7-day low flows that would occur under drought conditions with the reservoir system operated under Plan G compared with the historical baseline monthly 7-day low flows would be significantly less during certain critical months. Specifically, the monthly 10th percentile exceedance value for 7-day average flow in June is 16% less under Plan G operations than under the historical model flows (No Action Alternative). In July the monthly 10th percentile exceedance value for 7-day average flow is 12% less under Plan G operations for the period 1980 through 2008. When monthly 7-day 10-year recurrence low flows (7Q10) are calculated for the same period (1980 – 2008) using the Pearson Type III methodology, the monthly 7Q10 is 8% less in August and 15% less in September under Plan G operations compared to historical modeled flow. Regardless of which method is used as the basis for comparison, these declines in 7-day average flow are significant given the water quality considerations in downstream reservoirs during drought conditions.

The Corps recognizes that the reduced flows under its preferred alternative will result in adverse downstream environmental impacts, including but not limited to downstream industrial, municipal, and recreational water uses in the State of Alabama. (DEIS pp. 6-112 — 6-118). The proposed preferred alternative is inconsistent with Corps regulations which require it to “[e]nsure that water quality, as affected by the project and its operation, is suitable for project purposes, existing water uses, and public health and safety and is in compliance with applicable Federal and state water quality standards.” ER 1110-2-8154 at 3. The USACOE’s response to the lower flows during drought conditions under the proposed alternative is that “[w]ater management activities may affect water quality under low flow conditions such that the state regulatory agencies may consider reevaluation of NPDES permits to confirm the system’s assimilative capacity.” (DEIS p. 6-112, and DEIS Executive Summary p. ES-48). However, the USACOE does not consider the viability of or potential costs of compliance with more restrictive permit limitations by NPDES permit holders. Further, the Corps’ discussion of the effects of reduced flows on fish and wildlife is inadequate to allow comment upon flow regimens for purposes of protecting endangered species, including but not limited to federally listed endangered aquatic species in the Coosa River.

Under the discussion of the proposed action’s impact on oxygen demand, the Corps states: “During low-flow conditions, some NPDES permits limit point source discharges, and permit conditions may be temporarily changed during extreme low-flow conditions.” (DEIS p. 6-

112, and DEIS Executive Summary p. ES-49). Again, however, the USACOE does not evaluate what those temporary changes to NPDES permit limits might include or what the cost of complying with those conditions might be. Nor does it consider changes to Georgia NPDES permit holders that must and should be made during these conditions to avoid disparate impacts on Alabama NPDES permit holders located downstream.

Under the discussion of Mitigation the Corps states:

Reevaluation of wasteload allocations from point sources in the upper Coosa River and Alabama River may be appropriate to ensure that current discharge permits do not violate water quality standards when in-stream flow changes from the No Action Alternative. Georgia EPD and ADEM base discharge permits on 7Q10 conditions; the system's 7-day minimum flow from the previous 10-year period. In some permits, restrictions are placed on discharges during low-flow conditions. Georgia EPD and ADEM may determine that it would be appropriate to reevaluate stream flows in the upper Coosa River and Alabama River to ensure that NPDES permitted facilities do not violate water quality standards under extreme low-flow conditions. Some current NPDES permits limit or restrict discharges during low-flow conditions similar to what occurred in 2007. The water quality model developed during this EIS made assumptions regarding point source discharges that might not apply during low-flow conditions. The states may elect to update NPDES permits to limit discharges during certain in-stream flow conditions.

DEIS p. 6-196, and DEIS Executive Summary p. ES-70.

This reevaluation of 7Q10 flows is clearly within the responsibility of the USACOE as a part of their evaluation of the alternatives under NEPA. (40 CFR Part 1502.23). The cost of this evaluation should not be placed on the State of Alabama and the cost of any subsequent changes in NPDES permits must be considered as a part of the alternatives analysis.

Weiss Lake, the first reservoir on the Coosa River downstream of the USACOE-operated Allatoona Lake on the Etowah River and Carters Lake on the Coosawattee River, is currently listed as impaired by ADEM due to excessive nutrient loading. (Attachment 2 – Final Total Maximum Daily Load (TMDL) for Nutrient Impairment - Weiss Lake). In 2001, the State of Alabama adopted numeric nutrient criteria in the form of a growing season average chlorophyll *a* concentration for two locations within Weiss Lake. Historic measurements of chlorophyll *a* in Weiss Lake show that the adopted criteria have been exceeded during a number of years and particularly during drought years. (Attachment 3 – ADEM Water Quality Data for Weiss Lake). The following figures depict growing season (April –

October) mean chlorophyll *a* concentrations in the dam forebay of Weiss Lake (station WEIC-1), near the mid-reservoir upstream of Alabama Highway 9 (station WEIC-2), and near the Alabama-Georgia state line at the upstream end of Weiss Lake (station WEIC-12).

Figure 1.

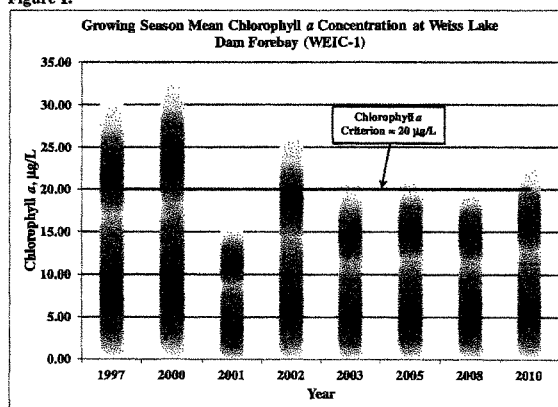


Figure 2.

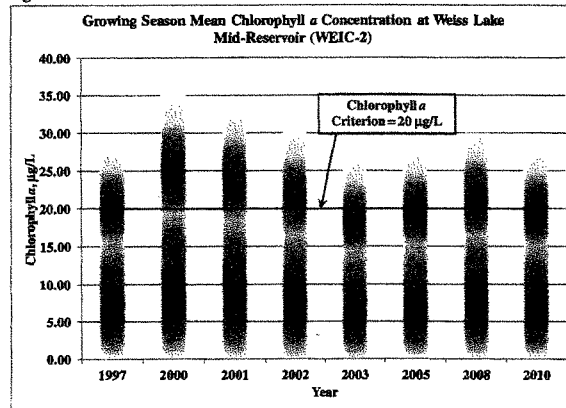
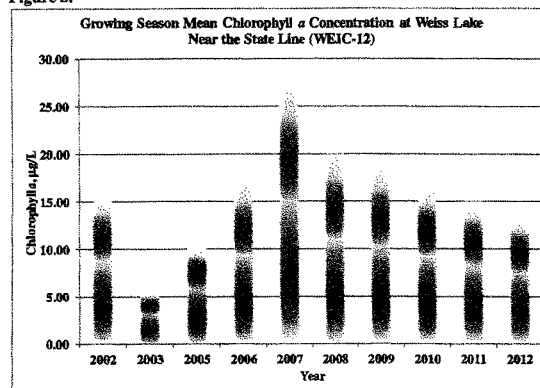


Figure 3.



Figures 2 and 3 above highlight Weiss Lake's susceptibility to increased algal productivity during periods of drought (i.e., 2000, 2007) as a result of the reservoir's increased residence time. (See also Attachment 4 – Maceina, M. J. and Bayne, D. R. 2003. "The Potential Impact of Water Reallocation on Retention and Chlorophyll *a* in Weiss Lake, Alabama", *Lake and Reservoir Management* 19(3); pp. 200-207). The reduced flows under the Corps' preferred alternative are going to exacerbate chlorophyll *a* concentrations at Weiss Lake. The DEIS concedes this. (DEIS p. 6-117 ("In periods of dry weather, with low inflows, the Proposed Action Alternative would be expected to increase algal growth in Weiss Lake, and resulting potential updates to discharge permits may have an adverse impact on upstream dischargers.")).

Other water quality parameters are also significantly affected by reduced flow into Weiss Lake and the resulting increase in residence time. These include dissolved oxygen (DO), temperature, and pH. While Alabama's water quality criteria for chlorophyll *a* are expressed as a growing season average concentration, criteria for DO, temperature, and pH are applied instantaneously and not as a daily, weekly, or growing season average. For DO, the criterion is further applied at a depth of five feet below the water surface when the total depth is ten feet or greater. At locations where the water depth is less than ten feet, the criterion is applied at mid-depth. Since DO and pH are both influenced by algal productivity, these parameters often reflect hypereutrophic conditions in the photic zone of the reservoir through an increased diurnal change. Elevated temperatures resulting from decreased flow and increased residence time can further impact DO by decreasing the saturation concentration and increasing biochemical reaction rates. The following figures illustrate the impact of low inflow on pH, DO, and temperature at several locations in Weiss Lake between the dam forebay and the state line. The figures illustrate the fact that Weiss Lake is already experiencing problems with these water quality criteria, especially in times of drought. Just as with chlorophyll *a*, lower flows into Weiss Lake as proposed under the Corps' preferred alternative will only serve to exacerbate these problems.

Figure 4.

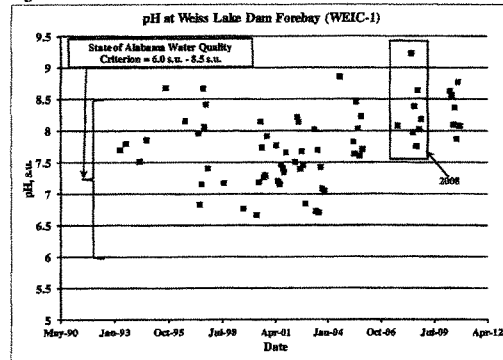


Figure 5.

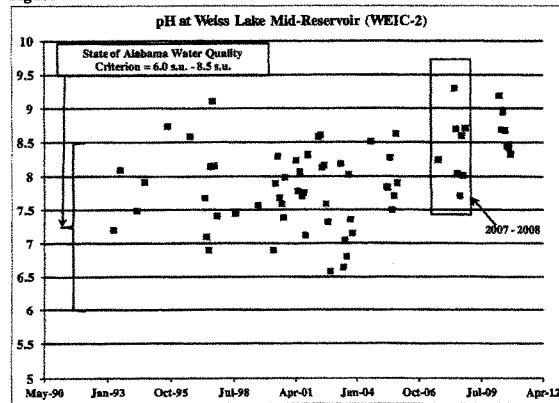


Figure 6.

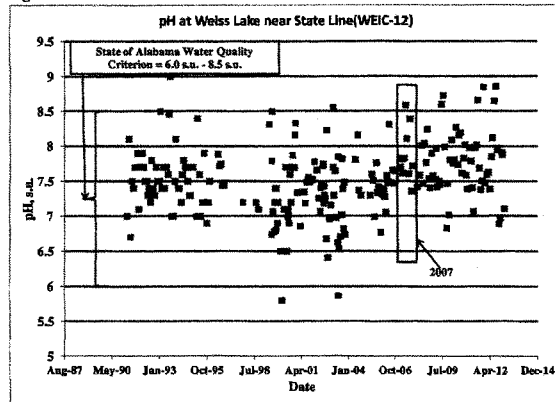


Figure 7.

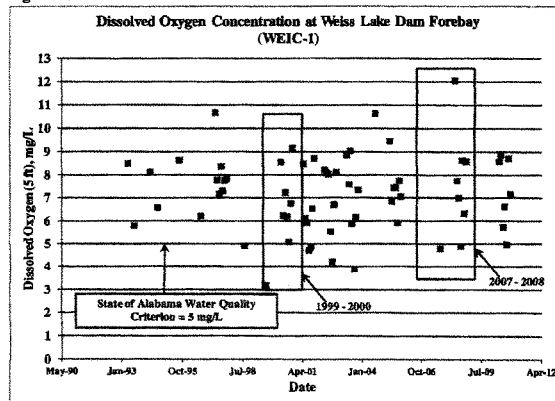


Figure 8.

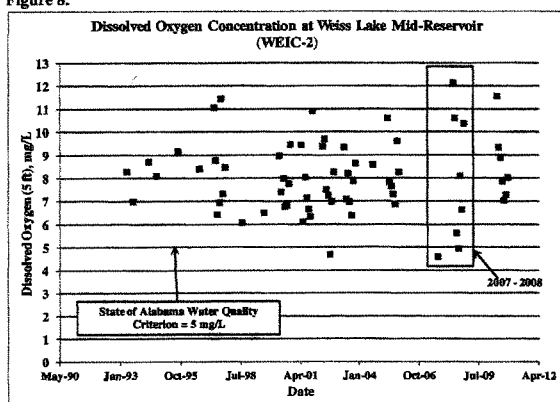


Figure 9.

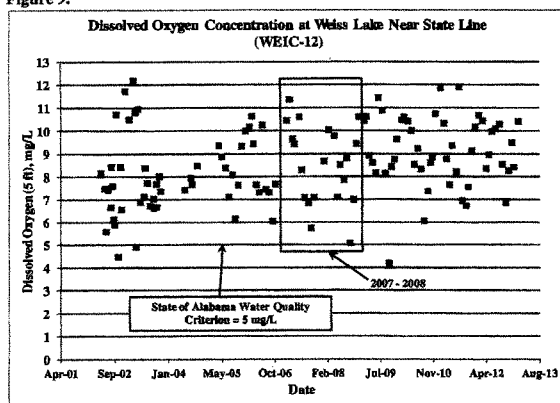


Figure 10.

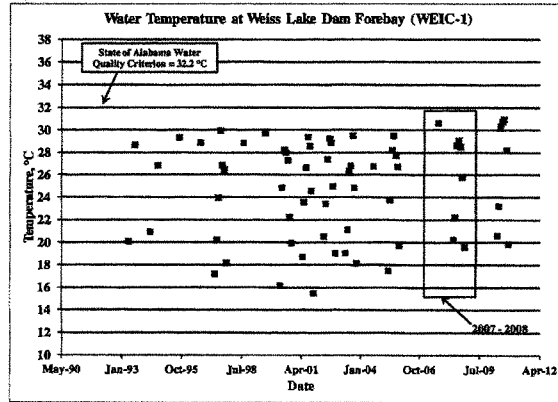


Figure 11.

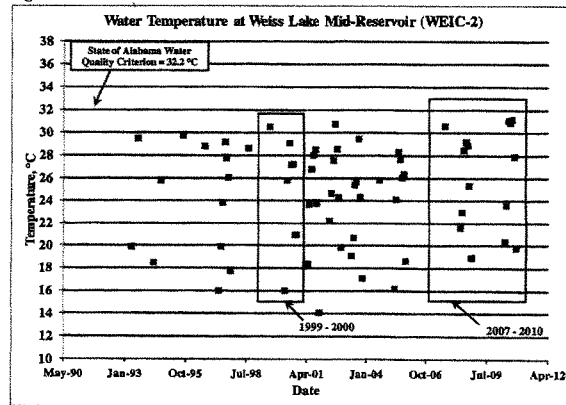
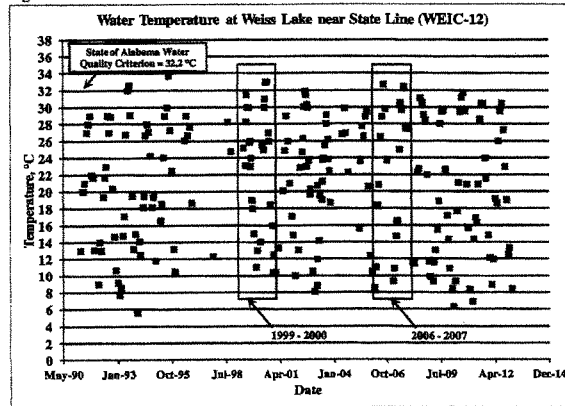


Figure 12.



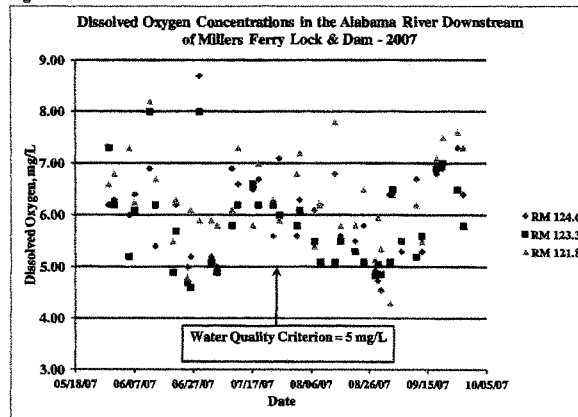
(Water quality data for other reservoirs in the Coosa, Tallapoosa, and Alabama River basins is included as Attachment 5.) The historical water quality data demonstrates that reductions in flows as proposed under the preferred alternative are likely to adversely impact downstream water quality and result in violations of water quality standards. The DEIS concedes this point. (DEIS pp. 6-112 — 6-118). The Corps is thereby violating its obligation to “[e]nsure that the project and its operation offer the lowest stress possible to the aquatic environment” and to “[e]nsure that water quality, as affected by the project and its operation, is suitable for project purposes, existing water uses, and public health and safety and is in compliance with applicable Federal and state water quality standards.” ER 1110-2-8154 at 3-4.

3. The importance of a routine water quality monitoring and reporting program was highlighted during the 2007 drought when water quality concerns on the Alabama River below the Millers Ferry Lock and Dam resulted in changes to the USACOE’s operation of the hydropower facility.

These changes became necessary after low dissolved oxygen conditions in the Alabama River upstream of the International Paper mill threatened to require the mill to curtail

operations pursuant to requirements in the facility's NPDES permit. (See Part IV of Attachment 6 – Final NPDES Permit AL0002674 – International Paper Company – Pine Hill Containerboard Mill). (Dissolved oxygen data collected by International Paper during 2007 are shown in Figure 13). If the USACOE had been routinely monitoring water quality conditions (DO and temperature) in the Millers Ferry Dam tailrace during the summer of 2007, a more complete understanding of the factors affecting DO resources in the downstream river segment would have been possible, and management actions could have been initiated sooner.

Figure 13.



The USACOE has proposed no water quality monitoring plan (as required by ER 1110-2-8154) to ensure that Plan G does not cause or contribute to violations of Alabama's water quality standards or otherwise result in adverse downstream environmental impacts.

Although the DEIS recognizes that changing conditions may necessitate updates to the Water Control Manual for the ACT, there is no mention of specific monitoring plans to detect these changes. USACOE regulations at ER 1110-2-8154 (Water Quality and Environmental Management for Corps Civil Works Projects) describe specific management objectives for

all USACOE projects, including the development and implementation of a water quality data collection program for each project.

Section 8 of the regulation provides:

Division-wide water quality management programs are required. Specific water quality management objectives must be developed by the districts for each project, and procedures must be outlined and implemented to meet those objectives. These objectives will be included in the project water control plans. These plans must be reviewed and updated as needed but not less than every 10 years. The plans must achieve environmentally sustainable overall use of the resource. The water quality management plans should be scoped to include all areas influencing and influenced by the project. Divisions must ensure that water quality management is an integral part of the water control management program. Division water control/quality elements are responsible for approval of deviations from water control manuals and should provide guidance in developing water quality data collection activities. Divisions should adopt and implement the following general water quality management objectives for all Corps water resource projects:

a. Ensure that water quality, as affected by the project and its operation, is suitable for project purposes, existing water uses, and public health and safety and is in compliance with applicable Federal and state water quality standards."

...

k. Ensure that the project and its operation offer the lowest stress possible to the aquatic environment.

ER 1110-2-8154 at 3-4.

This regulation provides additional detail on the necessary elements of a water quality data collection program and states: "A continuing water quality data collection program is necessary for each Corps project. This data collection is essential in order to understand and manage the environmental resources of the Corps' water projects effectively." *Id.* at 4. Objectives of the water quality data collection program are detailed in Section 10. *Id.* at 4-5. The Corps' preferred alternative fails to include an adequate water quality management program as Corps regulations require. *Id.* at 3. (The full text of ER 1110-2-8154 is included as Attachment 7).

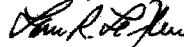
In summary, the Corps' proposed action in the DEIS directly conflicts with the Corps' regulations. As noted above, the Corps' "management responsibilities extend throughout the area influenced by and influencing the water [it] manage[s]." ER 1110-2-8154 at 2. In fulfilling

those responsibilities, the Corps has committed to a policy of "protect[ing] all existing and future uses including assimilative capacity, aquatic life, water supply, recreation, industrial use, hydropower, etc." *Id.* Rather than "[e]nsur[ing] that water quality, as affected by the project and its operation, is suitable for project purposes, existing water uses, and public health and safety and is in compliance with applicable Federal and state water quality standards," *id.* at 3, the DEIS concedes that the preferred alternative will have adverse downstream environmental consequences but leaves it to others to deal with those consequences. Such an approach is contrary to the Corps' obligation to comply with its regulations and to "manage its projects in accordance with all applicable Federal and state environmental laws, criteria, and standards." *Id.* at 2.

ADEM appreciates the opportunity to provide comments on the DEIS developed for the ACT Water Control Manual revisions. ADEM stands ready to cooperate in any way possible to ensure that the updated manual provides protection of Alabama's water quality standards while maintaining the necessary flexibility to operate the very complex system of reservoirs in the ACT River basin. ADEM looks forward to assisting where needed in additional efforts to implement an effective water quality monitoring program to ensure that USACOE operation of the ACT system complies with Alabama's water quality regulations.

If there are questions regarding these comments or a need for additional clarification, please contact Mr. Lynn Sisk of the Department's Water Division at (334)271-7826.

Sincerely,



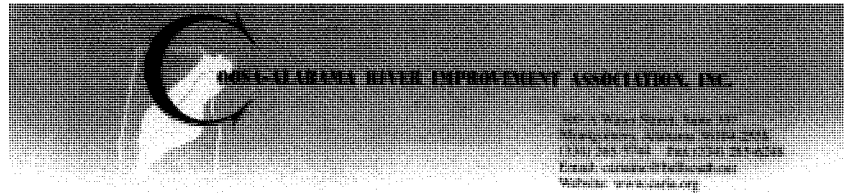
Lance R. LeFleur
Director

LRL/LS/ghe

Enclosures

Affidavit

cc: Glenda Dean, Chief, ADEM Water Division
Lynn Sisk, Chief, ADEM Water Quality Branch
Jim Giattina, Director, EPA Region IV Water Management Division
Linda MacGregor, Chief, Watershed Protection Branch, GA Environmental Protection Division
Bill Pearson, Field Supervisor, Daphne Field Office, US Fish and Wildlife Service



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ADMINISTRATION

Jerry L. Sailors
President

May 31, 2013

VIA EMAIL TO: act-wcm@usace.army.mil

Colonel Steven J. Roemhildt
Commander, Mobile District
U.S. Army Corps of Engineers
ATTN: PD-EI (ACT-DEIS)
Post Office Box 2288
Mobile, Alabama 36628

Re: Comments on the Draft Environmental Impact Statement (DEIS)
for the Revised Water Control Manual (WCM) for the Alabama-
Coosa-Tallapoosa (ACT) River Basin

Dear Colonel Roemhildt:

The Coosa-Alabama River Improvement Association (CARIA) was formed in 1890 by businessmen in Gadsden, Alabama for the purpose of promoting river transportation on the Coosa and Alabama Rivers. CARIA members include cities, counties, businesses, and individuals from Rome to Mobile that have an interest in maintaining and improving the multiple-use benefits of those rivers. Our mission is to improve and market the Coosa, Alabama, and Tallapoosa Rivers through education, promotion, and public advocacy.

Over the years we have focused primarily on navigation as an authorized use of federal infrastructure within the Basin, but we have a vested interest in all the uses that infrastructure serves. As demonstrated by recent droughts, balancing navigation, hydropower, recreation, flood control, water supply, water quality, and fish and wildlife enhancement is a difficult, but essential task. So CARIA fully supports the efforts of the US Army Corps of Engineers (Corps) to operate federal facilities in the ACT basin in the most efficient and effective way.

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In general, CARIA views the entire ACT Basin as an economic and environmental resource providing incalculable benefits to the southeast region of the country. A major component of those benefits is the Alabama River navigation channel. Maintaining that channel in an operational status has several economic benefits for the region:

1. The availability of barges as an alternate mode of transportation dampens road and rail rates for shippers;
2. Barges provide exceptional benefits of capacity, efficiency, and safety that contribute to the nation's transportation capability;
3. Maintaining navigation channel facilities greatly benefits recreational boat traffic;
4. Putting cargo onto barges reduces highway congestion and maintenance costs;
5. Waterways have room to absorb additional cargo without significant additional investment costs.

Despite its current low level of barge activity, the Alabama River navigation channel is an economic asset and a tool to create jobs and benefits for the state, particularly central Alabama and the Black Belt region. Growth in barge activity is possible and would be a much-needed economic boon to the state, including some of its most economically challenged areas. CARIA continues to receive regular inquiries from parties interested in siting on a navigable waterway, but they typically lose interest when informed of the Corps' inability to provide navigable conditions on a regular or predictable basis. The WCM and DEIS should do more to recognize and support the potential of the river from Montgomery to Mobile Bay and encourage the economic activity that commercial navigation would generate.

Overall, CARIA supports any of the proposed alternatives that provide more definitive criteria of navigation depths and more positive benefits as depicted in the modeled flows below Claiborne Dam. Also appreciated is the inclusion of a drought management plan with defined actions. There are, however, several areas that need to be clarified.

The Corps should clarify its authority to maintain the channel.

Language describing the scope of the DEIS relative to congressional authority pertaining to navigation is misleading:

- Page ES-2, lines 13-14: "This EIS considers only operational changes within existing congressional authorities and does not consider operational changes that would require additional authority."
- Page ES-10, lines 39-40 and page ES-11, lines 1-2: "Navigation is one of the congressionally authorized purposes in the ACT Basin; however, recommendations to ... construct additional training works in the Alabama

River, or maintain tributaries to the Alabama River exceed existing congressional authority for navigation in the system and were not considered.”

These statements suggest that the Corps lacks statutory authority to carry out minor improvements that would assist in keeping the channel clear. That is not our understanding. In any event, flow and channel maintenance are inextricably connected concepts when providing for navigation. As the Corps reviews its plans to support commercial navigation, we urge you not to separate these two interrelated factors.

Congress has authorized the Corps to maintain the Alabama River navigation channel, which extends from the mouth of the river 305 river miles to a point approximately 17 miles above Montgomery at the confluence of the Coosa and Tallapoosa Rivers. The channel itself consists of channel cutoffs, dams with locks, and training works. Throughout the DEIS and WCM are references to maintaining that channel through flow management, dredging, and training works.

Training works then are part of the authorized channel infrastructure and should be acknowledged as an ongoing operational requirement in the DEIS and WCM. As with dredging, modifying those training works should require justifying funding only, not additional authorization. To the extent the Corps’ statements reflect a view that the Corps lacks standing statutory authority (apart from the question of year-to-year funding), we urge the Corps to clarify its view as to the extent and nature of its authority to build small works, such as training weirs, for the sake of channel availability.

The Corps should clear tributary openings to boost flows.

Currently, the Corps and Alabama Power Company (APC) coordinate water flows supporting navigation in the Alabama River. Given the current state of channel maintenance, the agreed-upon daily average minimum flow of 4640 cfs does not provide full-depth navigation or maintenance at the 7Q10 flow of 6,600 cfs below Claiborne. Intervening flows from Alabama River tributaries and drawdown of RF Henry and Millers Ferry reservoirs must be used. The minimal storage capacity of the Henry and Millers Ferry reservoirs limits capability to provide the flows required. It is imperative, therefore, intervening flows from tributaries, such as Catoma Creek and the Cahaba River, be fully utilized to maximize the chances of attaining sufficient navigation flows at Claiborne, which means we must not allow those tributaries to silt in or be blocked.

As the Corps notes, “Releases by APC together with local inflows downstream of the Coosa and Tallapoosa Rivers’ confluence are expected to provide the required flow in the Alabama River downstream of the Claiborne Lock and Dam.” (DEIS, p. 4-6, ll. 27-29)

The Corps also observed in the June 2009 Mobile District report, *Environmental Assessment for Small Boat Access Channels in the Alabama River, Alabama*, as follows: “Operation and maintenance of the Alabama-Coosa River system (ACR) and its tributaries provides for development of navigation, flood control, power, and recreation.”

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and "is authorized by Public Law 14, 79th Congress, in accordance with the River and Harbor Act on 1899, on 2 March 1945." (Emphasis added.)

The Corps, then, is authorized to maintain those tributaries that contribute to navigation flows by removing sediment blocking the mouth of those tributaries. Maintenance of the tributaries then should be acknowledged as an ongoing operational requirement in the DEIS and WCM. Any suggestion otherwise in an official document such as the WCM or EIS is detrimental to public and private efforts to promote the Alabama River navigation channel as an economic asset.

The Corps has proposed a *de facto* reordering of project purposes at the expense of navigation.

The WCM purports to not prioritize the multiple uses in managing federal reservoirs, but the preferred alternative does exactly that by raising and extending the "plateau" of the rule curves at Allatoona and Carters in the dry months of the late summer and fall, when it is needed most downstream. We find this particularly difficult to understand given that navigation was among the original purposes for which the reservoirs were constructed, and downstream interests have acted in reliance on those flows being there.

Likewise, the Corps' Drought Management Plan (DEIS pp ES 12-13 and p 4-14, WCM p E-C-22) also exposes navigation to abandonment for the sake of other purposes at the most critical times in that the downstream navigation flow target at Montgomery is the first to be reduced under any declared drought condition. However, as demonstrated during the drought years of 2007 and 2008, attempts to maintain the 4640 cfs releases from the Coosa and Tallapoosa projects can endanger the entire ACT system. Cutback in releases at that time, given the minimal impact on the low level of navigation downstream, was fully justifiable and underscored the need for a well-designed drought management plan that minimizes the effect low flow conditions can have on all river-supported purposes. The WCM (p 7-1, lines 26-27) reiterates the Corps' responsibility to "ensure adequate water control regulation to support navigation on the Alabama River." Navigation flows also support other downstream needs, such as water quality and wastewater assimilation. So when describing actions taken to address drought conditions, both the WCM and DEIS should then acknowledge that any decision to reduce "navigation" flows should be made with due consideration of economic as well as environmental impacts on downstream requirements.

Thank you for your consideration of these comments. Please feel free to contact me if I may provide additional information.

Sincerely,



Jerry L. Sailors
President

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Georgia Department of Natural Resources
Environmental Protection Division

2 Martin Luther King Jr., Drive, Suite 1152 East Tower, Atlanta, Georgia 30334
 Judson H. Turner, Director
 (404) 656-4713

May 31, 2013

BY ELECTRONIC MAIL AND U.S. MAIL

Colonel Steven J. Roemhildt, Commander
 U.S. Army Corps of Engineers, Mobile District
 Attn: PD-EI (ACT-DEIS)
 P.O. Box 2288
 Mobile, AL 36628

Re: Draft Environmental Impact Statement for Update of the Water Control Manual
 for the Alabama-Coosa-Tallapoosa River Basin Environmental Impact Statement
Comments of the State of Georgia

Dear Colonel Roemhildt:

In response to the Federal Register Notice of March 8, 2013 (78 Fed. Reg. 15,007), the State of Georgia submits the following comments regarding the U.S. Army Corps of Engineers' ("Corps") Draft Environmental Impact Statement ("DEIS") on the potential environmental impacts associated with the Corps' update of the water control manual ("WCM") for the Alabama-Coosa-Tallapoosa ("ACT") River Basin.

I. Introduction

As noted in the State of Georgia's October 20, 2008 comments regarding the Scoping Process for the ACT WCM, Georgia has a significant interest in the Corps' management of water resources within the ACT Basin. The headwaters of both the Coosa River Basin and the Tallapoosa River Basin are within the State. In addition, the Corps' two primary storage reservoirs in the ACT River Basin—Lake Allatoona and Carters Lake—are located in Georgia. Georgia relies upon both reservoirs for municipal and industrial water supply, recreation, support of water quality, and fish and wildlife habitat. More than 915,000 Georgians rely upon water supply withdrawals from Lake Allatoona alone. Several Georgia communities also rely on the Tallapoosa River and its tributaries to meet municipal and industrial water supply needs.

The State of Georgia submits these comments regarding deficiencies in the DEIS and WCM. The DEIS fails to assess current or future water supply demand and usage. The DEIS also fails to consider changes that Alabama Power Company ("APC") has proposed to flood control operations at APC's projects in the ACT Basin. These issues, as well as other concerns, are discussed in greater detail below.

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II. Regulatory Requirements for Environmental Impact Statement and Water Control Manual

The National Environmental Policy Act ("NEPA") requires federal agencies to develop an Environmental Impact Statement ("EIS") before undertaking any major federal action "significantly affecting the quality of the human environment." 42 U.S.C. § 4332. Council on Environmental Quality ("CEQ") regulations establish parameters for analysis to be undertaken in an EIS.

The purpose of an EIS is to the "provide full and fair discussion of significant environmental impacts" and "inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." 40 C.F.R. § 1502.1. To comply with NEPA, an agency must "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves conflicts concerning alternative uses of available resources." 40 C.F.R. § 1501.2(c). Proposals that are related to each other should be evaluated as part of a single EIS. 40 C.F.R. § 1502.4. The EIS is to be used to evaluate potential actions before a decision is made, not to justify a decision that an agency has already made. 40 C.F.R. § 1502.5. The Corps must integrate its NEPA evaluation into its decision-making process at the earliest possible time. 40 C.F.R. § 1501.2.

The heart of any EIS is the consideration and analysis of alternatives. 40 C.F.R. § 1502.14. The EIS must rigorously "explore and objectively evaluate all reasonable alternatives." 40 C.F.R. § 1502.14(a). One such alternative that the agency must consider is the no action alternative. 40 C.F.R. § 1502.14(d). The no action alternative is the alternative that represents the *de facto* status quo with regard to agency action. See *Center for Biological Diversity v. United States Dept. of Interior*, 623 F.3d 633, 642 (9th Cir. 2010) ("A no action alternative in an EIS allows policymakers and the public to compare the environmental consequences of the status quo to the consequences of the proposed action."); *Custer County Action Ass'n v. Garvey*, 356 F.3d 1024, 1040 (10th Cir. 2001) (finding that the no action alternative must represent the "known impacts of maintaining the status quo," even if the agency's current actions might exceed its authority); Council on Environmental Quality, *Memorandum to Agencies Containing Answers to 40 Most Asked Questions on NEPA Regulations*, 46 Fed. Reg. 18,026, 18,027 (March 17, 1981) ("the regulations require the analysis of the no action alternative even if the agency is under a court order or legislative command to act. This analysis provides a benchmark, enabling decisionmakers to compare the magnitude of environmental effects of the action alternatives."). The agency also must consider reasonable alternatives, including those that are outside its jurisdiction. 40 C.F.R. § 1502.14(c).

The Corps must consider the cumulative impact of the no action alternative and other reasonable alternatives. "Cumulative impact" is defined to include the effects not only of the agency's actions but the actions of third parties that will result from the agency's actions or failure to act:

Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless

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of what agency (Federal or non-Federal) or person undertakes such other actions.

40 C.F.R. § 1508.7.

Environmental consequences are the “scientific and analytic basis for consideration of alternatives.” 40 C.F.R. § 1502.16. Consequences to be considered include direct and indirect effects, and possible conflicts with state plans and policies. 40 C.F.R. § 1502.16(c). Effects to be considered include economic, ecological, aesthetic, historic, cultural, social, and health, whether direct, indirect, or cumulative. 40 C.F.R. § 1508.8. When economic and sociological effects are interrelated with environmental effects, then all of these effects on the human environment are to be studied. 40 C.F.R. § 1508.14.

III. The Corps’ Analysis of Current Water Supply Needs and Water Supply Alternatives

Nearly a million residents of the State of Georgia rely upon withdrawals from Lake Allatoona to meet a wide range of municipal and industrial water supply needs. The State of Georgia expects these needs to increase in the foreseeable future as the State’s population, particularly in the Atlanta metro area, continues to grow.

To address Georgia’s future water supply needs, on January 29, 2013, Georgia Governor Nathan Deal submitted to the Assistant Secretary of the Army for Civil Works a formal request that the Corps manage the resources of Lake Allatoona to meet the projected water supply needs for water stored in Lake Allatoona (the “Allatoona Water Supply Request”). Governor Deal requested that the Corps (1) allow gross municipal and industrial water withdrawals from Lake Allatoona to increase to between 123.9 and 147.9 million gallons per day (MGD) annual average to meet 2040 demands; (2) allow the Cobb County-Marietta Water Authority (“CCMWA”) to withdraw from its existing intake in Lake Allatoona water that is released from the Hickory Log Creek Reservoir specifically for CCMWA, without requiring CCMWA to acquire additional storage space for such withdrawals; (3) in determining the amount of water that may be withdrawn without exhausting the storage that a water supply user has purchased, credit to that user exclusively all returns of treated wastewater that the Georgia EPD has permitted and allocated to that user for withdrawal; and (4) enter into contracts that document the parties’ understanding as to how the Corps will operate in support of Georgia’s water supply needs.

On April 29, 2013, the Assistant Secretary issued a response to Governor Deal’s request. The Assistant Secretary’s letter states that the Allatoona Water Supply Request “will require additional evaluation,” and that “the Corps is unable at this time to make a final decision on any of the aforementioned requests.” The letter also says that “the Corps is not in a position to take final action on any of those issues prior to the completion of the updated ACT water control manual in fall 2103.”

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The letter states, therefore, that the “water control manual update only addresses the operational aspects of the federal reservoirs and the Alabama Power Company reservoirs that are incorporated for flood control and navigation into the federal system, taking into account congressional authorizations, current law, and current conditions affecting the system operations.” It also says that the Corps is reviewing its policy for crediting of return flows and other storage accounting issues that Georgia has raised, that the WCM update “will not foreclose resolution or dictate the outcome” of Georgia’s Allatoona Water Supply Request, and that the Corps intends to further revise the WCM as necessary after making a decision on the Water Supply Request.

The Assistant Secretary’s letter appears to have helped clarify the Corps’ intent in developing the WCM. That is, it appears to be the position of the Corps that it has not made a determination whether to credit return flows exclusively to CCMWA or other water supply users as directed under an allocation by the State of Georgia, whether to credit exclusively to CCMWA releases of stored water from Hickory Log Creek Reservoir, or how to address other storage accounting issues that the State of Georgia and CCMWA have raised. Therefore, the Corps has not made a final determination on how much water the storage space of CCMWA and Cartersville will produce at any given time, or whether CCMWA and Cartersville need additional storage to accommodate their current levels of water use. The Corps will need to make those findings before it can determine the amount of additional storage that may be needed to accommodate future water supply demands and decide whether to allocate such storage to water supply.

Assuming the WCM is not intended as a decision as to water supply, and therefore is intended only to continue the status quo with regard to Corps action pending a separate determination on water supply, the Corps should clarify that and should revise the DEIS to study that scenario. Contrary to what it suggests, the DEIS does not consider the “current conditions affecting system operations” at Lake Allatoona. The DEIS states that “[y]ear 2006 represented the greatest annual amount” of water use in the basin through the 1939-2008 simulation period and that, therefore, the “2006 net withdrawals are modeled as diversions.” DEIS Appendix C, p. 31. The DEIS does not, however, use 2006 withdrawals, or any other figure that roughly approximates current levels of water supply use, at Lake Allatoona. Instead, the Corps assumes that water supply withdrawals from Lake Allatoona will be 34.5 MGD for CCMWA and 16.76 MGD for the City of Cartersville for each and every month of the year. These numbers are not accurate approximations of current water use in at least two ways: they are considerably less than current levels of withdrawal; and, in reality, withdrawals vary by month and season.¹ In 2006, for example, CCMWA’s gross withdrawals from Lake Allatoona varied from 33.5 MGD in January to 62.9 MGD in June, and the annual average withdrawal was well above 34.5 MGD. CCMWA’s gross withdrawals on an annual basis have been reduced since 2006 but remain well above 34.5 MGD

¹ In addition, although the DEIS notes a number of potential water projects within the ACT Basin, the DEIS fails to address the Hickory Log Creek Reservoir or include the reservoir’s operations in modeling flows in the Basin. The Corps’ failure to model operations related to the Hickory Log Creek Reservoir is another example of the DEIS’s failure to address current conditions.

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nearly every month. CCMWA's net withdrawals, by contrast, have been below 34.5 MGD in nearly every month.

The HEC-ResSim model that the Corps uses to evaluate impacts in the DEIS fails to accurately account not only for actual withdrawals from the Allatoona reach, it also fails to account for return flows of treated wastewater discharged directly into Lake Allatoona or indirectly back to the Lake via upstream tributaries. These return flows result in a discharge to the ACT Basin system of more than 20 MGD on an annual average basis. In addition, as is the case for system withdrawals, these return flows are seasonally variable. Because returns are a part of current operations at Lake Allatoona, the Corps should adjust its model to reflect this reality.

The Corps does not offer a rational basis for choosing the amounts it has assumed for current water supply withdrawals from Lake Allatoona. It appears that the amounts the Corps has assigned for water withdrawal correspond to an estimate of the critical yield from CCMWA's and Cartersville's storage space. This is inappropriate for multiple reasons. For one, even if the amounts of water that the storage accounts will produce were an appropriate estimation of current water use, the Corps has not properly calculated those withdrawal amounts. As the Corps is well aware, the amount of water that CCMWA's and Cartersville's storage accounts will produce at any given time is variable, and depends on, among other things, the amount of water entering the reservoir at any given time and storage accounting methodology. If numbers that the Corps has chosen approximate the water withdrawals available from CCMWA's and Cartersville's storage space in the critical period, they significantly underestimate the amount of water that CCMWA's and Cartersville's storage space will produce at other times.²

In addition, and more broadly, to the extent that the Corps intends the WCM to maintain the status quo pending a decision on the Allatoona Water Supply Request, the DEIS should utilize the best information for current withdrawals. Why the Corps may have chosen contracted-for storage levels (incorrectly calculated, as noted above) as a proxy for current water use is not clear. Some indication of the Corps' rationale may be contained in the Corps' response to a comment made during the scoping process. Comment BC6 states, "The baseline should be based on the amount of storage currently under contract and should assume that the contract amounts establish limits or caps on the amount of water that can be withdrawn for water supply purposes." DEIS p. 1-42, lines 11-13. Comment BC7 states, "The baseline should not assume that the current practice of allowing water withdrawals in excess of contract amounts by the CCMWA will be continued in the future." DEIS p. 1-42, lines 15-16. The Corps responds to both comments by stating, "The Corps agrees." DEIS p. 1-42, lines 14, 17.

² On a related issue, as Georgia and CCMWA have previously suggested in comments to the Corps, the Corps, in its storage accounting should credit return flows exclusively to the storage account of water users to whom Georgia has allocated those return flows.

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Not only are Comments BC6 and BC7 incorrect to the extent that they imply that CCMWA or Cartersville has overdrawn its storage account—that determination has not been made, as noted above—they also reflect a misunderstanding of the Corps' obligations under NEPA. An EIS must include an analysis of the no action alternative. The no action alternative represents the effect of the agency continuing to act, or not act, as it has been doing. Therefore, to analyze the no action alternative, the Corps must consider the effect of continuing to allow the current level of water supply withdrawals as they have occurred at Lake Allatoona, even if the Corps were to determine that current withdrawals exceed contracted-for amounts, and even if the Corps were required by law to restrict withdrawing parties to their contracted-for amounts (which it is not). *See supra* p. 3. By not assuming current levels of withdrawal, the DEIS does not include the correct no action alternative and therefore is fatally flawed.

If it desires to consider a reduction in water supply withdrawals to 34.5 MGD for CCMWA and 16.76 MGD for Cartersville as an action alternative, which Georgia submits is not a reasonable alternative, and therefore not worthy of consideration, the Corps at least would have to analyze the effects of this reduction. The cumulative effects of a reduction in water withdrawals from Lake Allatoona to those levels would include short-to-long-term water shortages, and the need for the State or other third parties to develop alternative supplies (dams and reservoirs in the ACT Basin, interbasin transfers from outside the basin, etc.). The DEIS does not address the environmental, human health, or economic effects of water shortages and new water resource projects in its cumulative effects analysis.

The Corps also fails to consider increased water supply withdrawals from Lake Allatoona as an action alternative. The Corps suggests that it has chosen this approach because Georgia's Allatoona Water Supply Request is under consideration and apparently will be addressed in a separate decision, ostensibly with another EIS.³ Georgia will not prejudge that process, but Georgia points out that its future water supply need is reasonably foreseeable; therefore, the current EIS should at least consider it as an alternative, even if the Corps is not yet prepared to make such an increase the proposed action. In addition, because the Corps is authorized by the Water Supply Act of 1958 to allocate additional storage to water supply, water supply is a fully authorized purpose of Lake Allatoona. Without considering future levels of supply, the EIS has not rigorously explored and objectively evaluated all reasonable alternatives, contrary to 40 C.F.R. § 1502.14(a). Nor will the Corps have incorporated the NEPA evaluation into its decision-making process at the earliest

³ The Corps also states, with regard to reallocation for water supply, that the Corps desires to remain neutral, and "no conceivable proposal exists that both states would support." DEIS p. 1-7, lines 24-25. While Georgia agrees that the Corps should remain neutral in the dispute between the States, taking no action ultimately with regard to reallocation would not be "neutral." The neutral and appropriate course is instead for the Corps to consider any request or need for reallocation on the merits, in accordance with applicable regulations.

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possible time, contrary to 40 C.F.R. § 1501.2, or combined related actions in a single EIS, contrary to 40 C.F.R. § 1502.4.

IV. The DEIS Does Not Assess Alabama Power Company's Proposed Operations

The DEIS does not analyze the effects of rule curve changes that APC has proposed in the ongoing Federal Energy Regulatory Commission ("FERC") relicensing process for the Coosa River Project. In addition, the DEIS does not analyze changes that APC has proposed in the FERC relicensing process for the Lake Martin Project.

For Lake Weiss, APC proposes to raise the winter guide curve by 3 feet from elevation 558 feet to 561 feet from December 1 through March 1. There would be a constant rise in the lake elevation until reaching the normal elevation of 564 feet on May 1. The summer guide curve would be extended from August 31 to September 30. See DEIS p. 2-36, lines 3-11. For Logan Martin Lake, APC has proposed to raise the winter pool by 2 feet, from the existing winter elevation of 460 feet to 462 feet. From January 1 to April 14, the pool would be at 462 feet. Beginning on April 15, lake levels would gradually increase to the normal summer pool elevation of 465 feet. On October 1, the water elevation would begin to fall to the winter pool elevation of 462 feet by January 1. See DEIS p. 2-39, lines 29-33.

Despite acknowledging that both proposals "could have some adverse effects on the flood risk management function" on the respective projects and stating that the "Corps has not concurred with the APC proposal to FERC," the Corps elected not to consider these adverse effects as part of the DEIS. DEIS p. 2-36, lines 7-11; p. 2-39, lines 33-38. Instead, the DEIS states that before "implementing the proposed increase in the winter pool elevation, additional analysis (and NEPA documentation) would be required to allow revisions to the ACT manual beyond those considered in this EIS." *Id.*

The Corps' failure to consider APC's proposed rule curve changes violates the Corps' obligation to consider cumulative impacts under NEPA. In a response to a comment that the "Corps should conduct an analysis of cumulative effects of FERC relicensing process of eight APC dams in the ACT Basin," the Corps responds that the "environmental effects of the operations of the APC projects under the proposed FERC license are documented in Final Environmental Assessment (EA) for Hydropower License Coosa River Hydroelectric Project-FERC Project No. 2146-111 Alabama and Georgia, December 2009." ("FERC Coosa EA"). DEIS p. 1-38, lines 8-13.

The FERC Coosa EA does not, however, relieve the Corps of its obligations under NEPA regarding the ACT WCM. The proposed rule curve changes are "reasonably foreseeable future actions" that the Corps must consider as part of the NEPA process. The DEIS itself acknowledges that "additional analysis (and NEPA documentation) would be required" for the proposed rule curve changes. This statement is inconsistent with the Corps' position that the FERC Coosa EA has already addressed any potential environmental concerns regarding APC's operations. In addition, the analysis in the FERC Coosa EA is insufficient to meet the requirements of the EIS that the Corps is to develop for the ACT WCM. Finally, neither the FERC Coosa EA nor the DEIS address APC's

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proposed changes for the Lake Martin Project. Therefore, the Final EIS for the ACT WCM must adequately consider the cumulative effects of the proposed changes to the APC projects in the ACT Basin.

V. General and Technical Comments

There are a number of other issues related to the DEIS, the Master ACT WCM and the individual project WCMs that the Corps must address prior to issuing the final documents:

A. General Comments

1. Clarity of Peaking Power Generation Requirements

Although the State of Georgia understands and appreciates the need for flexibility in the Corps' hydropower operations, the Corps' decisions as to how it plans to operate at Lake Allatoona in the proposed Zone 3 and during the winter drawdown period should be clarified so as to prevent confusion in the future. For Zone 3, the Corps' WCM for Allatoona provides that peaking power generation will be limited to between 0 and 2 hours per day when the Lake is in Zone 3. The Corps' HEC-ResSim model, however, provides that peaking power will be scheduled at 2 hours in the top 20% storage of Zone 3, 1 hour for the next 70% of Zone 3, and 0 hours when the Lake is in the lowest 10% of Zone 3. While Georgia does not wish to limit the Corps' flexibility in operations, when modeling the impact of the proposed operations on Lake Allatoona, the Corps may need to provide a range of possible outcomes.

2. Apparent Errors in Low Basin Inflow Guide

The values presented for the Low Basin Inflow Guide used in the Drought Contingency Plan in various locations, including Table 4.2-4 in the DEIS, Table 8 in the ACT Master WCM, and Table 7-7 in the Allatoona WCM do not appear to be accurate. Because the amount of storage at the turn of the year is the same, the positive and negative filling volume in the fall should aggregate to zero. That is not the case for the current numbers in the Corps documents.

Georgia EPD has independently calculated the storage change and believe the numbers to be as follows:

<u>Month</u>	<u>Coosa Filling Volume</u>	<u>Tallapoosa Filling Volume</u>	<u>Total Filling Volume</u>	<u>7Q10 Flow</u>	<u>Required Basin Inflow</u>
January	514	0	514	4640	5154
February	587	1800	2387	4640	7027

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March	655	2955	3610	4640	8250
April	1734	2311	4045	4640	8685
May	316	46	361	4640	5001
June	0	0	0	4640	4640
July	0	0	0	4640	4640
August	0	0	0	4640	4640
September	-691	-918	-1608	4640	3032
October	-1396	-2103	-3499	4640	1141
November	-912	-2748	-3660	4640	980
December	-746	-1212	-1958	4640	2682

B. Draft Environmental Impact Statement (DEIS)

1. Page ES-28, Figure ES-6 and Lines 8-9 – Figure ES-6 states that hydropower generation is to be reduced in the months of September through November. Lines 8-9 state that “hydropower generation would be reduced during annual drawdown in the fall (September through October).” The Corps should correct this discrepancy.
2. Page 2-15, Line 17 – The word “that” after “being met less” should be changed to “than.”
3. Page 2-21, Table 2.1-5, Figure 2.1-12 – Table 2.1-5 indicates that the conservation storage for Lake Martin is 49.3% of the total conservation storage in the ACT Basin. Figure 2.1-12 indicates that the conservation storage for Lake Martin is 48.7%. The Corps should correct this discrepancy.
4. Page 3-8, Line 26 – The DEIS incorrectly states that CCMWA’s current contract for storage in Lake Allatoona expires in 2013. As the Corps is aware, CCMWA’s storage contract provides that it expires (though CCMWA’s entitlement to storage does not) 50 years after each particular storage space is placed into operation. Although CCMWA and the Corps entered into a storage contract for storage at Lake Allatoona in 1963, CCMWA did not begin using any of that storage until 1966. Therefore, CCMWA’s storage contract does not expire until at least 2016. The Corps should make this correction in the Final EIS.

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5. Pages 3-10 to 3-11 – The DEIS provides a discussion of the litigation history for the ACT and ACF River Basins. This discussion ends with negotiations between the states and the decision to update the ACT WCM in 2007. The Corps should update Section 3.1.10 of the EIS to indicate that all of Alabama's claims have been dismissed.
6. Page 4-3, Line 19 – “WMC” should be changed to “WCM.”
7. Page 4-7, Figure 4.2-1 – Figure 4.2-1 is not consistent with Table 4.2-1 on page 4-8.
8. Page 5-5, Figure 5.1-3 – The drought curve in Figure 5.1-3 is different from the drought curve used in the HEC-ResSim model.

C. ACT Master Water Control Manual

1. Page 1-3, Table 1-1 – The conservation storage values listed in Table 1-1 for many of the reservoir projects in the ACT Basin are inconsistent with the conservation storage values used in the HEC-ResSim model. The following table provides a comparison:

Project	Conservation storage listed in manual (acre-feet)	Conservation storage in HEC-ResSim model (acre-feet)
Carters	141,402	141,402
Allatoona	284,580	284,589
Weiss	237,448	261,025
H. Neely Henry	43,205	118,300
Logan Martin	108,262	141,876
Lay	77,478	92,348
Mitchell	28,048	48,821
Jordan	15,969	16,965
Harris	191,129	207,318

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Martin	1,183,356	1,202,291
Yates	5,976	6,918

2. Page 7-11, Figure 7-3 – The project curves in Figure 7-3 are not consistent with the values in Table 7-1 on page 7-12.
3. Page 7-14, Table 7-3 – The values in Table 7-3 are not consistent with the numbers shown in Figure 7-5. The values for December appear to be incorrect.
4. Page E-C-28, Table 9 – To allow for independent verification by Basin stakeholders, the Corps should specify the methodology or technical tool used to calculate the 7Q10 flows at the Georgia/Alabama line.
5. Pages E-C-30 and E-C-31 – The contents of Figures 14 and 15 appear to be incorrect.

D. Allatoona Water Control Manual

1. Page 7-3, Table 7-2; Page 7-11, Line 36 – Table 7-2 provides a list of “typical” peaking generation hours. Other portions of the Manual, including page 7-11, line 36, refer to these same hours as “minimum” generation hours. The Manual should consistently indicate that the generation hours are “typical” but do not represent minimum required hours.
2. Pages 7-11 to 7-12, Line 27 – The Hydroelectric Power section (7-10) makes no reference to a reduction in peaking power generation during the transition to winter draw down (September through November) even though the DEIS and the HEC-ResSim model both anticipate reduced hydropower generation during that period. The Corps should modify both the Master and Allatoona WCMs to account for reduced hydropower generation during the winter draw down period.
3. Page 7-15, Lines 35-45 – The Allatoona WCM does not clearly define “Basin Inflow” for drought operations. As written, the term could be confused with the “Navigation Basin Inflow.” Basin Inflow should be defined as all of the water entering Alabama Power’s reservoirs downstream of Lake Weiss and the local incremental flow entering Lake Weiss that originates from the drainage area of Weiss downstream of both Lake Allatoona and the Carters Re-Regulation Dam.

4. Plate 2-5 – The elevation-storage values for Lake Allatoona shown in Plate 2-5 differ from those used in the HEC-RcsSim model. The following table compares the elevation-storage values:

Pool Elevation (ft)	Total Storage in Manual (acre-feet)	Total Storage in Model (acre-feet)
780	37,861	37,851
800	82,891	82,884
802	89,655	89,647
806	104,887	104,879
808	113,451	113,447
810	122,711	122,709
812	132,715	132,705
814	143,511	143,514
816	155,135	155,137
818	167,619	167,612
820	180,993	181,000
822	195,279	195,280
824	210,493	210,492
826	226,651	226,656
828	243,769	243,772
830	261,863	261,860
832	280,994	280,940
834	301,040	301,031
836	322,145	322,154

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838	344,281	344,288
840	367,471	367,473
842	391,741	391,749
844	417,136	417,136
846	443,718	443,713
848	471,558	471,559
850	500,731	500,734
852	531,323	531,317
854	563,431	563,427
856	597,165	597,164
858	632,553	632,646
860	670,047	670,052
870	804,000	804,006

E. H.N. Henry Water Control Manual

1. Page 7-9, Line 1, Table 7-4 – The values in Table 7-4 for the month of December appear to be incorrect because the values are the same as for the month of January.
2. Page 8-1, Lines 24-29 – The Corps uses the temporary winter rule curve elevation of 507 feet for the water resources analysis but uses an elevation of 505 feet for the flood risk analysis. The Corps should use the same elevation for both analyses.
3. Page 2-3, Line 27 – The WCM references Plate 2-13, which is not incorporated in the document.
4. Plate 7-1 – The WCM contains two plates that are both titled Plate 7-1. One plate uses the temporary rule curve of 507 to 508 feet. The other plate uses the existing curve of 505 to 508 feet. It is confusing to have two sets of rule curves under the same plate title. In addition, it is not clear which plate the Corps uses for its evaluation.

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5. Pages E-F-20 and E-F-30 – The values in Figures 14 and 15 appear to be different from the values used in the HEC-ResSim model.

F. Millers Ferry Water Control Manual

1. Page 2-3, Table 2-1 – Table 2-1 lists the total storage at elevation 71 feet as 214,950 acre-feet. The HEC-ResSim model uses the value of 214,650 acre-feet.

G. Carters Water Control Manual

1. Plate 7-2 – The storage numbers shown in Plate 7-2 differ from the values used in the HEC-ResSim model as follows:

Pool Elevation (ft)	Total Storage in Manual (acre-feet)	Total Storage in Model (acre-feet)
850	40,500	40,000
900	71,000	70,000
1000	195,000	200,000

H. Harris Water Control Manual

1. Plate 2-2 – Plate 2-2 is for the Neely Henry project, not the Harris project.
2. Plate 2-20 – The storage numbers shown in Plate 2-20 differ from the values used in the HEC-ResSim model as follows:

Pool Elevation (ft)	Total Storage in Manual (acre-feet)	Total Storage in Model (acre-feet)
767	211,812	212,036
768	218,025	218,403
769	224,373	224,770
770	230,858	231,276

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771	237,485	237,901
772	244,254	244,685
773	251,171	251,607
774	258,234	258,688
775	265,449	265,928
776	272,818	273,306
777	280,344	280,844
778	288,031	288,540
779	295,881	296,394
780	303,898	304,436
781	321,086	312,637
782	320,445	321,012
783	328,982	329,564
784	337,701	338,298
785	346,603	347,216
786	355,695	356,324
787	364,979	365,625
788	374,459	375,122
789	384,141	384,821
790	394,028	394,724
791	404,126	404,840
792	414,438	415,170

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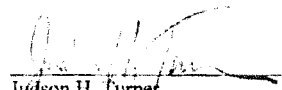
793	424,969	425,721
794	435,725	436,495
795	446,711	447,501
796	457,932	458,742

3. Page E-D-28 -- The storage values shown in Table 14 and 15 appear to be incorrect.

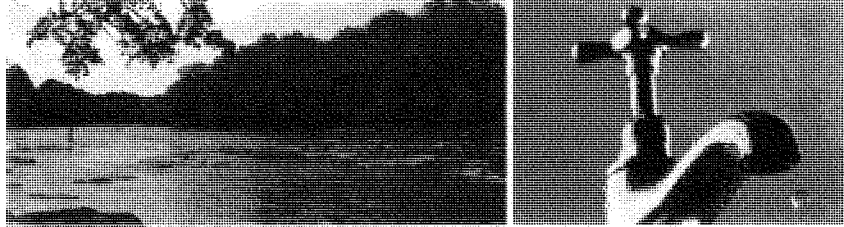
VI. Conclusion

Please give the foregoing comments careful consideration in making necessary revisions to the WCM and the EIS for the ACT WCM. Please contact me if you have any questions or if I can be a resource for additional information that would assist you in this process.

Respectfully Submitted,



Judson H. Turner
Director
Georgia Environmental Protection Division



WATER CONTINGENCY PLANNING TASK FORCE

FINDINGS AND RECOMMENDATIONS

21 December 2009

ACKNOWLEDGEMENTS

The Task Force acknowledges the dedication of the co-chairs:

- John Brock Chairman and CEO, Coca-Cola Enterprises
- Tim Lowe CEO, Lowe Engineers

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DEFINITION OF KEY TERMS

APPENDIX

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- IV. Technical assumptions used in option evaluation
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1 EXECUTIVE SUMMARY

The Water Contingency Planning Task Force was created to analyze the potential water shortfall in Georgia in light of Judge Magnuson's July 2009 ruling, and to develop a contingency plan containing a prioritized set of recommendations on water conservation and supply options. The Task Force evaluation reaffirms that Lake Lanier is by far the best water supply source for the metro region. If the recommended contingency options were required instead, these options would impose significant incremental economic costs and environmental impact the region does not currently face.

The Task Force does not foresee the ability of the metro region to meet the potential water shortfall in 2012, when Judge Magnuson's ruling could take effect, even with extremely aggressive mandated conservation. Within this timeframe, no new supply options could offer significant yield. By 2015, there is a potential contingency solution, consisting primarily of an indirect potable reuse project, along with a set of conservation measures and isolated groundwater options. The 2015 solution would, however, require significant upfront capital of approximately \$3 billion and supply water at an average incremental unit cost of \$890 per million gallons (MG). By 2020, a broader set of more cost-effective options exists, as reservoirs and transfers could be implemented. In that regard, the Task Force recommends a 2020 contingency solution that considers cost efficiency, environmental impact, and implementation feasibility criteria. This solution includes conservation measures and groundwater options that could be available the 2015 solution, but replaces the relatively expensive indirect reuse project with more cost effective reservoir expansions (Tussahaw Creek, Dog River), and a new reservoir (Richland Creek). The 2020 contingency solution would require a lower upfront capital requirement of ~\$1.7B and would have an incremental unit cost of \$460/MG, which is nearly half the 2015 solution cost.

While the supply options for 2015 and 2020 are identified as *contingencies*, the Task Force recommends that enhanced conservation, implemented through incentive-based programs, should be pursued regardless of the outcome of Lake Lanier reauthorization. This program of enhanced conservation is the basis for a set of Task Force recommendations on "no regrets" options to implement immediately, along with a supporting set of policy considerations (detailed in Section 3.1). There are three broad areas of additional conservation improvements that build on the Metro Atlanta's significant conservation progress to date, and are reflected in these recommended policies:

1. Institute mandatory data collection and reporting of key metrics to inform future planning efforts. For instance, utilities would have to conduct standardized water loss audits.
2. Adopt higher water efficiency standards and incentive measures to increase conservation effectiveness. (e.g., increasing incentives for fixture and soil meter retrofits.)
3. Link progress on conservation efforts to funding eligibility, low-interest loan qualifications, and permitting applications to ensure implementation of measures.

The *Contingency* solutions recommended by the Task Force should only be pursued if they are deemed to be absolutely essential, based on the outlook of tri-state negotiations, Lake Lanier

reauthorization efforts, and the appeal of Judge Magnuson's order. Preference should be given to the 2020 contingency solution, if possible, and only if this action is required. In conjunction with the 2020 contingency solution, the Task Force also identified a set of policies that could support the implementation of mandate-based conservation measures envisioned within that contingency solution (detailed in Section 3.2), also to be considered only if necessary to the support a contingency solution. However, the Task Force notes that the ability to implement either a 2015 or 2020 solution in their stated timeframes would also be contingent on initiating the necessary technical studies and permitting process swiftly, and implementation within these timeframes would not accommodate any unforeseen delays.

2 INTRODUCTION

2.1 Background

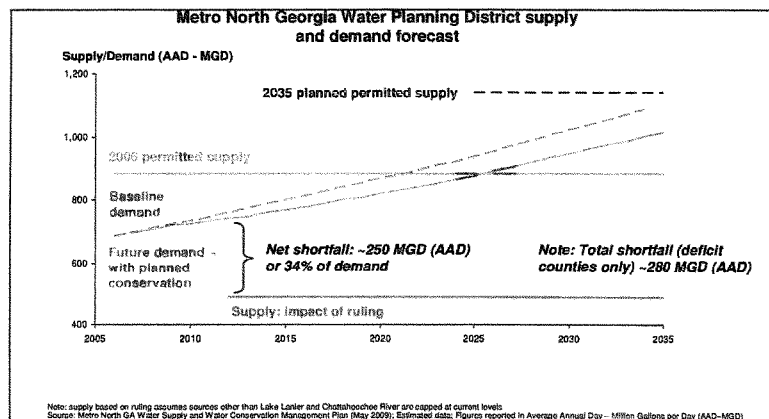
On July 17 2009, U.S. District Judge Paul Magnuson issued a ruling holding that water supply was not an authorized purpose of Lake Lanier. Additionally, Judge Magnuson determined that the US Army Corps of Engineers' (hereafter referred to as the Corps) operation of Lake Lanier for water supply exceeded its authority under the Water Supply Act of 1958. Judge Magnuson concluded that, absent further Congressional authorization, water supply operations at Lake Lanier must cease by mid-July 2012. That is, except for certain limited withdrawals that predate construction of the reservoir, all withdrawals directly from Lake Lanier will be prohibited, and releases from Buford Dam to meet downstream water needs will be severely curtailed.

In response to the ruling, the Governor outlined a 4-pronged strategy which consisted of (a) appealing the ruling in court, (b) negotiating a mutually agreeable water allocation scheme with Alabama and Florida, (c) pursuing Congressional reauthorization of Lake Lanier for water supply and (d) developing a contingency plan, to be implemented if the Judge's ruling were to take effect. The Water Contingency Planning Task Force was created to evaluate to various options for a contingency plan and make recommendations to the Governor.

Absent Congressional action or reversal on appeal of Judge Magnuson's order, that order will create a water supply shortfall for North Georgia in July 2012. The part of Judge Magnuson's order that would go into effect in July 2012 does not directly limit withdrawals from the river. That element of the order, however, does enjoin the Corps' operation of Buford Dam such that the reliable supply of water available from the river will be severely curtailed. Although it is not currently possible to predict with specificity how much water would actually be available for withdrawal from the river under the operations required by the Judge's order, the order did state that such operations in the 1970s yielded 230 Million Gallons per Day (MGD). The range of possible yields from the required operations is wide, but 230 MGD appears to fall well within that range, and accordingly was used as the assumed amount of available water for purposes of calculating the water supply shortfall.

Given this assumption, a net water shortfall was calculated to be approximately 250 MGD (on an annual average basis) in the metro region (15 county region served by Metropolitan North Georgia Water Planning District, hereafter referred to as Metro Water District) in 2012. This shortfall is estimated by taking the difference between projected 2012 water demand, as published in the Metro Water District's Water Supply and Water Conservation Management Plan (published in May 2009, hereafter referred to as the Metro Water Plan), and projected 2012 water supply under the scenario that could occur should Judge Magnuson's ruling take effect. This is illustrated graphically in Figure 1. The projected shortfall of 250 MGD is a net shortfall across the entire metro region, subtracting from the total shortfall the amount of estimated surplus in counties with excess water from other sources. Relying on one possible interpretation of how the ruling would impact downstream communities, the total shortfall for counties in deficit (while ignoring the counties with surplus) was estimated to be approximately 280 MGD in 2012. This shortfall estimate of 280 MGD was used by the Water Contingency Planning Task Force (hereafter referred to as the Task Force) for planning purposes, out of conservatism. Using a similar approach and assuming that demand continued to grow as outlined in the Metro Water Plan, the corresponding water shortfall in 2015 and 2020 were estimated to be approximately 310 MGD and 350 MGD respectively. Clearly, the Judge's ruling has a very significant impact on water supply to the metro region.

Figure 1: Projected water shortfall in 2012 under Judge Magnuson's ruling



In response to this potential significant problem, the Task Force had two key objectives. First, to develop a fact-base to educate business and community leaders on Georgia's water situation and the implications of Judge Magnuson's ruling. Second, to define a time-driven action plan that prioritized

specific options and recommendations for conservation, supply enhancement, and water policy to address the potential shortfall.

The Task Force, in order to fulfill its mission and scope, was directed by the Governor's office to work with a set of key operating assumptions:

- Options were to be defined assuming that Judge Magnuson's ruling remains in effect. Thus, interbasin transfer options could not assume use of Lake Lanier to store incremental water supply, as withdrawals from the lake would be restricted under the ruling
- All types of options were to be considered for evaluation, without regard to legal or political implementation challenges.
- The geographic scope to be evaluated was focused on only those areas affected by the ruling. Specifically, the scope was to be limited to only the ACF (Apalachicola Chattahoochee Flint) basin, with a primary focus on the metro Atlanta region as the area most severely affected
- Long-range water planning was to be outside the scope of the Task Force effort and instead was to be addressed by the Comprehensive Statewide Water Management Plan and to be the responsibility of existing Regional Water Planning Councils.
- Existing long-range water supply and conservation plans and underlying data were to form the Task Force's baseline. The potential water supply shortfall was to be defined by incorporating already planned conservation savings. Therefore, Task Force conservation savings were to be incremental to what is in the May 2009 Metro Water District Plan
- The Task Force was to identify the timeframe by when the potential water shortfall could be addressed, and the means to do so, *i.e.*, with what supporting set of options. On the basis of the Judge's ruling and option evaluation, three relevant time horizons emerged - 2012: the year when withdrawals from Lake Lanier end and the Corps' operation of Buford Dam changes, 2015: the earliest possible timeline when potential shortfall could be addressed (based on option availability), and 2020: timeframe by which the shortfall could be addressed with a broad suite of potential options (including reservoir and transfers). Note that these timelines are based on the assumption that there are no significant delays to implementation of options (e.g., permitting, technical studies, etc), and presume that decisions to implement are made in a timely fashion.

2.2 Limitations on scope of study

The limitations of this study should be clearly understood. A thorough analysis of the shortfall and potential solutions will require many months, perhaps years, to complete. Given the urgency created by Judge Magnuson's order, however, the Governor directed the Task Force to deliver this report within six weeks. This time frame was essential in the event that action would need to be taken in the 2010 session of the General Assembly.

Accordingly, the contents of this report should be taken as initial findings and recommendations that will provide a basis for further study and analysis. All yield and cost estimates are preliminary and are likely to change with further analysis. Furthermore, projects have been studied on an individual basis

without considering the interaction between different projects; the yield of certain projects may not be additive to others because of interactions not fully evaluated. Projects have also been assessed without considering the logistics or cost of making water transfers within the metro region, and to places where it may be the most needed. The Task Force focused exclusively on the total water supply potentially available to the Metro Water District without addressing issues related to the distribution or allocation of water within the District, or the impact of any alternatives on the use or ownership of existing water resources infrastructure. These issues are significant for many reasons—logistical, equitable, legal, and political—and could in many cases be the decisive factor in determining whether to pursue a project. The Task Force also did not presume to suggest how costs for these projects, including conservation projects, should be allocated. These issues are substantial and would require further study to provide for a more complete solution.

It should also be reiterated that the Task Force analyses focus only on the incremental gain over and above existing water supply and conservation plans prepared by the Metro Water District, which already provide for the implementation of aggressive water conservation measures.

3 RECOMMENDATIONS: SUPPORTING POLICIES AND ACTIONS

The Task Force defines supply and demand contingency options and also recommends a set of policies and actions for consideration by the Governor and State Assembly. These recommendations are divided into a set of policies to consider immediately (Section 3.1), and a set of potential policies to consider as contingency measures (Section 3.2). The recommended policies to consider immediately are solely conservation focused, because there are no supply-based contingency options that require immediate policy action, although other near term implementation steps may be required. Task Force recommendations are based upon those options evaluated and where appropriate the Task Force provides general policy guidance. The Task Force does not intend to provide prescriptive policy language. Note, as well, that all Task Force recommendations are set in the context of the ruling, which creates a potential shortfall only in the Metro Water District. Under certain considerations, these recommendations could have broader application and could be considered for application outside the region. Section 3.2 contains additional policies identified through the Task Force process, that may be worthy of consideration, but were not based upon the Task Force's evaluation of specific options.

Several state and local agencies would play key roles in implementing these policies. The office of the Governor, Georgia General Assembly, the Georgia Department of Natural Resources/EPD, GEFA, the Metro Water District (including local governments and water utilities), and other executive agencies such as the Georgia Soil and Water Conservation Commission, the Department of Community Affairs, and the Georgia Forestry Commission, all would have active and critical roles in implementing policies and in enforcement and oversight. The Regional Water Planning Councils

should also consider the recommendations and policies outlined in this report as relevant to their regions and the state water plan.

3.1 Policy Recommendations to pursue now

The Task Force recommends a set of “no regret” conservation options which should be implemented immediately, regardless of the ultimate outcome of the Lake Lanier ruling. These demand management programs are generally cost-effective, and promote both short and long-term water management goals. Specifically, the Task Force recommends that the Metro Water District pursue more aggressive incentive-driven conservation programs and adopt more aggressive conservation-pricing schemes, *even if* Lake Lanier is reauthorized for water supply use.

A detailed set of policies and actions are provided for each of the recommended conservation options, categorized into the following sections:

- General conservation principles
- Enhanced efficiency programs (both residential and commercial, including programs for toilets, showerheads, faucets, washing machines, spray rinse valves, and cooling towers)
- New outdoor water usage policies (watering restrictions and rain sensor irrigation systems)
- More multi-family sub-metering
- Improved information for loss reduction programs
- More aggressive conservation pricing
- Renewed water education

These policy recommendations support entirely incentive-driven implementation plans. Again, focus is on the Metro Water District but these recommendations could be considered for wider application across the state.

General conservation principles

With respect to those general principles which help foster a culture of conservation, the Task Force proposes that statutes be considered that reinforce certain principles:

- Require minimum implementation of water conservation measures by embedding water conservation implementation requirements in state permits, with active enforcement via periodic reporting
- Require adoption of real-time data collection for all water withdrawals, adoption of compatible online data management systems and reporting practices, and publication of water statistics for all users and use categories
- Tie state investment in water supply and other types of funding to minimum levels of water conservation implementation

- Increase state financial support grants and low interest loans for water and wastewater infrastructure
- Recommend that the state develop guidance or technical assistance programs for water utilities, e.g. education on cost benefit analysis, conservation evaluation (i.e. AWE's conservation tracking software)

Enhanced efficiency programs

The Task Force recommends that state and local governments and water utilities consider new rebate programs or enhanced existing rebate and tax credit programs that would provide greater financial incentives for individual water users to install and retrofit efficient fixtures and convert to water-saving appliances. Specifically, the Task Force recommends that:

- State and local government appropriate funds for residential retrofit rebate programs for toilets, showerheads and faucet aerators
- State and local governments and water utilities establish diverse rebate and tax credit programs
 - Expand rebate programs to all residential Water Sense appliances (e.g., washing machines, dishwashers, etc)
 - Expand rebate programs to include commercial spray rinse valves used in commercial kitchens and restaurants, and commercial cooling towers

New outdoor water usage policies

To address discretionary outdoor watering demands, the Task Force recommends that state and local governments appropriate funds for rebate programs to retrofit existing residential and commercial landscaping irrigation systems with rain sensors

More multi-family sub-metering

To encourage better accountability of personal water usage in multi-family complexes, the Task Force proposes that statutes be considered that requires state and local governments and water utilities to provide rebate incentives to existing non-sub-metered multi-family complexes to install sub-meters.

Improved information for loss reduction programs

The Task Force recommends several policies related to general water loss data management and leak abatement programs to minimize loss of Georgia's water resources. These actions should be implemented regardless of whether Lake Lanier is reauthorized or not. The goal of these policies is not to set specific water loss targets, especially given the data quality in this area, but to prepare local governments and water utilities for future evaluations of leak abatement programs and targets. Specifically, the Task Force recommends that:

- Every water utility conduct water loss assessments to IWA/AWWA (International Water Association / American Water Works Association) standards.

- Audits to improve consistency of non-revenue loss data and terminology, and enable better comparison of this benchmark across utilities and over time to assess progress
 - The utilization of standardized audits can be phased in with larger utilities complying within 3 years
- A funding program be developed provide financial assistance to water utilities for capital-intensive projects related to decreasing water loss
 - Direct GEFA to prioritize use of Clean Water and Drinking Water State Revolving Funds for projects that reduce water loss
- State and local government and industry associations assist in developing technical assistance program to provide guidance to water utilities for leak abatement programs
 - Technical guidance should be developed and water utilities given time to create and implement a program based on utility size or service population
- Every water utility develop a "real water loss" reduction program such as leak abatement options to address *actual* water leaks (i.e. not billing or metering problems)
 - Program can include leak detection and repair, valve exercising, and pressure management
- Every water utility develop a lost revenue recovery program
 - Program to include metering techniques such as meter testing and replacement (for all utility-owned meters including system and customer meters)
 - Utility should commit personnel to maintain meter system to accurately capture real versus apparent losses

More aggressive conservation pricing

To ensure the most effective conservation-based pricing rate structures, the Task Force recommends that:

- Every water utility conduct a detailed rate study, informed by accurate demand data, to be used as the basis for setting effective rates on utility-level basis. Every water utility should:
 - Identify key customer classes such as single family residential, multi-family residential, and commercial users
 - Maintain demand data for each customer class, such as (i) total number of customers in each class, (ii) total number of customers with irrigation meters in each class, (iii) total number of customers, total water volume sold and total billed charges for water and sewer at each 1,000 gallon per month consumption increment (For example, the total number of customers, total water volume sold and total billed charges for users consuming between 5K - 6K gallons per month, and similarly between 6K - 7K gallons per month, etc.), for each month.
- Effective residential conservation rate policies be implemented while providing sufficient flexibility to water utilities to set rates that meet individual requirements (such as sufficient funding, fair and equitable rates for local customers, bond requirements).

- Price per 1000 gallons at key consumption levels (5K, 10K, 15K gallons per month) for every water utility in the Metro Water District to be comparable to the price charged by other utilities in the rest of the Metro Water District (no less than 10% of metro average price), while accounting for customer affordability. Data from the GEFA rate study may be used for benchmarking. Utilities must assess the feasibility of implementing the necessary change within 1 – 3 years.
- Volumetric tier endpoints should be consistent with consumer consumption pattern; Minimum of three tiers with base tier addressing average winter use, Tier 1 allowing 1 day of irrigation per week, Tier 2 addressing all usage above Tier 1
- Price differential across tiers should be significant; Tier 1 price at least 50% above base tier price, Tier 2 price at least 250% of base tier price
- Every water utility educate consumers about conservation in their monthly bill
 - Historical usage to be presented with comparison to average usage of population served by the utility
 - Water utilities to report water usage figures in gallons, to make reports more intuitive and relevant to customers
- Every water utility conduct a pricing audit to measure key performance indicators, at minimum every 5 years, but recommended every 2 -3 years
 - Comparison of absolute prices at key consumption levels with rest of metro area, volumetric tier endpoints compared to consumer demand levels, degree of price change across each tier

Enhanced water conservation education

Successful conservation efforts have robust education and public outreach programs. Therefore, the Task Force recommends appropriate allocation of funding and resources to support existing programs and create new programs in order to foster greater understanding of Georgia's water resources. Specifically the Task Force recommends that:

- State and local governments provide funding to support state-wide water conservation campaigns and public outreach programs
- State and local government, in conjunction with water utilities and industry associations, establish partnerships with local businesses to develop, fund and deliver conservation education and communications programs.

3.2 Policy Recommendations in case of "Contingency Plan" requirements

In the event that Lake Lanier is not available for future water supply, the Task Force believes that incentive based conservation would be insufficient to meet shortfalls and that mandate-driven conservation measures could likely be a necessary component of contingency plans. The Task Force provides a set of policies and actions for that eventuality, in conjunction with the recommended contingency options. These policies are categorized into the following initiatives:

- Mandatory efficiency programs (both residential and commercial, including programs for toilets, showerheads, faucets, rain sensors, spray rinse valves, cooling towers)
- Mandatory multi-family sub-metering/or fixture conversion
- Mandated limits on outdoor water usage

The Task Force recommends that these alternative and more aggressive implementation approaches - mandated options - be considered only if Lake Lanier is not authorized for water supply.

Mandatory efficiency programs

Of all the contingency options, mandated efficiency programs, such as direct installation of efficient fixtures and retrofit on resale, appear to be the most effective and received the highest support of by the Task Force. The Task Force would endorse mandated efficiency programs, if necessary, for contingency planning because of increased water savings, as compared to the incentive-based programs. Specifically, under the conditions of the contingency plan, the Task Force would recommend that statutes be considered that:

- Updates plumbing code mandating HET toilets (1.28 gpf), low-flow showerheads and faucet aerators in all new residential construction
- Mandates water utilities to provide direct installations (water utility providers contract with plumbing contractors to directly replace fixtures in all customer residences and businesses) for all residential and commercial retrofits of:
 - High-efficiency toilets (1.28 gpf)
 - Low-flow showerheads and faucet aerators
 - Rain sensors on irrigation systems on residential and commercial premises
 - Spray rinse valves in commercial kitchens and restaurants
- Requires residential retrofit on resale (mandatory retrofit with low-flow fixtures on all properties at change of ownership)
- Mandates higher standards for cooling towers, increasing their water efficiency from 2 to 5 cycles of concentration (which can result in ~40% water savings).

Mandatory multi-family sub-metering

If necessary, the Task Force recommends the "required" usage of sub-meters in multi-family complexes, but provides alternative options where sub-metering retrofits are not cost-effective. Specifically, the Task Force would recommend that statutes be considered to require all existing non-sub-metered multi-family complex owners to either install sub-meters or pursue and demonstrate conversion to efficient fixtures and appliances, if more cost-effective

Mandated limits outdoor water usage policies

Under the contingency options, the Task Force would recommend that policies be considered to limit discretionary outdoor watering demands. Specifically the Task Force would endorse consideration of statutes to mandate 'no day-time watering' restrictions, possibly defined as no watering between 10am - 4pm, for all residential and commercial landscape usages

3.3 Additional policies for consideration

should also consider the recommendations and policies outlined in this report as relevant to their regions and the state water plan.

3.1 Policy Recommendations to pursue now

The Task Force recommends a set of “no regret” conservation options which should be implemented immediately, regardless of the ultimate outcome of the Lake Lanier ruling. These demand management programs are generally cost-effective, and promote both short and long-term water management goals. Specifically, the Task Force recommends that the Metro Water District pursue more aggressive incentive-driven conservation programs and adopt more aggressive conservation-pricing schemes, *even if* Lake Lanier is reauthorized for water supply use.

A detailed set of policies and actions are provided for each of the recommended conservation options, categorized into the following sections:

- General conservation principles
- Enhanced efficiency programs (both residential and commercial, including programs for toilets, showerheads, faucets, washing machines, spray rinse valves, and cooling towers)
- New outdoor water usage policies (watering restrictions and rain sensor irrigation systems)
- More multi-family sub-metering
- Improved information for loss reduction programs
- More aggressive conservation pricing
- Renewed water education

These policy recommendations support entirely incentive-driven implementation plans. Again, focus is on the Metro Water District but these recommendations could be considered for wider application across the state.

General conservation principles

With respect to those general principles which help foster a culture of conservation, the Task Force proposes that statutes be considered that reinforce certain principles:

- Require minimum implementation of water conservation measures by embedding water conservation implementation requirements in state permits, with active enforcement via periodic reporting
- Require adoption of real-time data collection for all water withdrawals, adoption of compatible online data management systems and reporting practices, and publication of water statistics for all users and use categories
- Tie state investment in water supply and other types of funding to minimum levels of water conservation implementation

The Task Force contingency plan began with a focus on demand management, through conservation. Conservation measures are environmentally friendly and often highly cost-effective, and are playing a major role in the metro region today. These options should be an integral part of any contingency solution. The range of potential water savings from additional conservation suggests that these conservative programs are necessary *but not sufficient* in addressing the potential water shortfall.

Conservation measures are, however, the only options available by 2012, primarily because supply-focused options such as reservoirs and transfers require time, both in pre-work (eg, permitting, environmental impact studies) and in actual construction. Conservation options also require time to yield savings, as they rely on consumer adoption and behavioral changes. However, the Task Force believes that even if the Metro Water District were to pursue an extremely aggressive conservation implementation approach through mandates that targeted the 2012 timeframe, the estimated yield (~80 MGD) would still be insufficient to meet the projected shortfall (~280 MGD). Accordingly, the Task Force believes that the Metro Water District does not have the ability to address a potential water shortfall by 2012. This 2012 portfolio, were it to be pursued, would consist of water fixture retrofits, conservation pricing, and a more comprehensive leak abatement program. The full detailed set of these 2012 options is listed in Section 4.1.

There is a potential contingency solution that is available to address the 2015 shortfall, although it would be very expensive and potentially very difficult to implement. Consequently, the Task Force believes that this solution should not be pursued unless it is absolutely required. In addition to the conservation options within the 2012 plan, the additional options available by 2015 include a number of small, isolated groundwater systems (contributing ~15% of the portfolio's yield). But more importantly, it would feature a major reliance on an indirect potable reuse project (which contributes ~75% of the overall portfolio yield). Indirect potable reuse would involve recapturing treated wastewater downstream from its original point of discharge, after dilution via sufficient contact with naturally occurring water, such as lakes or rivers. It would then be pumped back to upstream communities to replenish water supplies. This option is described further in Section 4.2.

This potential 2015 solution would require significant upfront capital of approximately \$3 billion. It would supply water at an average unit cost of \$890/MG, which is twice as costly as a potential 2020 solution. Another way to gauge the cost of contingency solutions is to consider the impact on the retail price of water. If one assumes that the incremental cost is borne (directly or indirectly) by water providers, retail water costs across the Metro Water District would have to increase by approximately 55% for the 2015 portfolio, versus ~32% for the 2020 portfolio. Clearly, the solution could pose a significant near-term economic burden on water consumers.

By 2020, a broader set of more cost-effective potential solutions exists, and the Task Force believes that such a portfolio is worthy of consideration, if required for contingency planning. These components include supply enhancement options such as existing reservoir expansions and new reservoir development, projects which require an estimated 8-12 years to come online. Because there are a larger set of options available by 2020, there are also many ways one could prioritize options to

create potential water supply portfolios. One such portfolio could be based on cost efficiency alone. Applying this method, the most cost-efficient portfolio could address the 350 MGD 2020 shortfall through an upfront investment of approximately \$2.3 billion, and an average unit cost of \$410/MG.

Using this most cost-efficient portfolio as a starting point, the Task Force incorporated environmental impact concerns and feasibility considerations to arrive at a recommended 2020 portfolio to address the shortfall. With an average unit cost of \$460/MG and an upfront capital requirement of approximately \$1.7 billion, this portfolio would consist primarily of the conservation measures and groundwater systems previously mentioned, plus four existing reservoir expansions and one new reservoir build. Full details of options included can be found in Section 4.3, while the process of developing this solution is discussed further in Section 5.2.

Table 1 summarizes key metrics such as yield and cost for the 2015 and 2020 contingency portfolio of options. Note that there is no possible solution by 2012, and that the 2015 solution is nearly twice as expensive as the 2020 solution. Also of note, the shortfall shown for 2015 is 310 MGD and for 2020, 350 MGD. These shortfall values assume Metro District demand follows long-term projections as per the existing water plan. Implicitly, this assumes the region would not face demand reduction as a result of the ruling.

Table 1: Summary of Potential 2015 and 2020 Solutions

	2015 solution	2020 solution
Yield (MGD)	~340 (2015 shortfall is ~310)	~360 (2020 shortfall is ~350)
Capital Cost (\$ million)	~3,060	~1,660
Cost efficiency (\$/MG)	~890	~460
Total 50 year cost (\$ million)	~5,035	~2,940
Potential impact on Metro District weighted average retail water rates (assuming costs borne directly/indirectly by utilities)	~55% increase (assuming ~\$5/kgallons base rate)	~32% increase

4.1 Description of 2012 option portfolio

When considering the challenge posed by Judge Magnuson's ruling, the first question to evaluate was whether potential water shortfall in July 2012 can be addressed. As mentioned, the Task Force does not believe that the Metro Water District can meet the potential supply gap by 2012, even with extremely aggressive conservation measures, including drought-response level, full outdoor watering bans.

Only conservation options would likely provide yield only by 2012, as they do not require the planning and construction time of infrastructure-based options. Many conservation options, however, still require ramp-up time, and could only yield a fraction of their potential savings by 2012. For example, options such as conservation pricing, sub-metering, and use of more efficient fixtures would require consumers to adopt the option and/or change their behavior, which could take several years. Capture and control options, such as reservoirs, require significant pre-work, such as permitting, technical design and environmental impact studies, which often take 3-4 years prior to start of construction. Because of these significant lead times, most of these capture and control options would not be available until 2020, except a small ground water project.

Figure 2: Aggressive implementation of conservation options insufficient to address 2012 gap

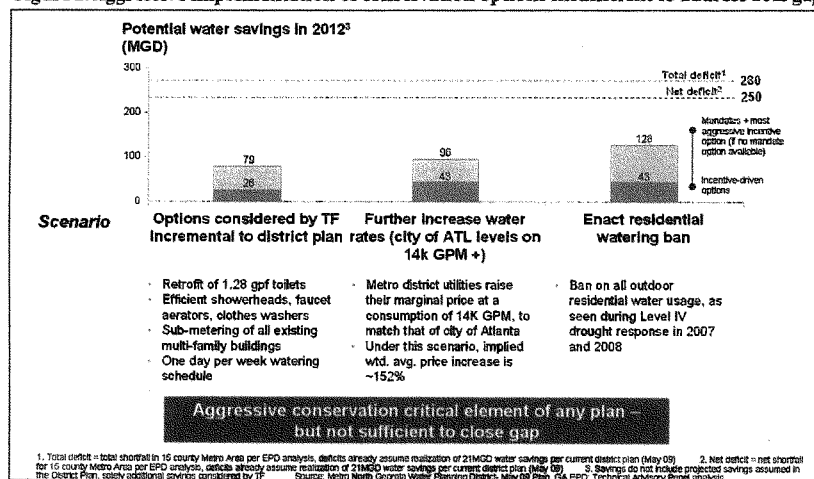
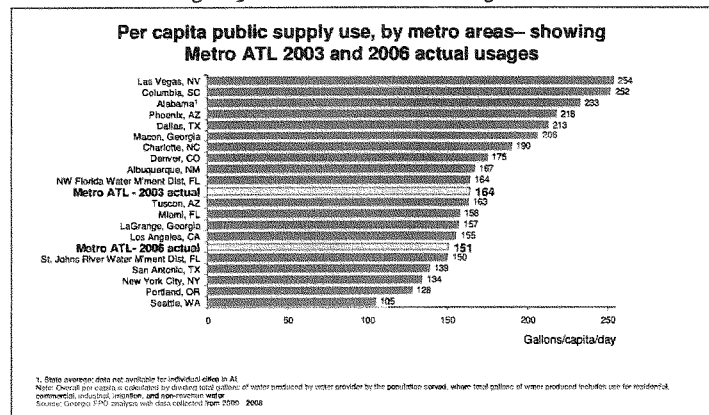


Figure 2 illustrates alternative conservation approaches, and demonstrates that conservation alone, even under extremely aggressive scenarios, would be insufficient to meet the potential 2012 water shortfall. The vertical axis represents potential savings in 2012 (MGD), with the dark green designating incentive-driven water savings and the light green highlighting the additional yield available through mandated conservation options. The first scenario on the left shows the estimated impact from the range of conservation options identified by the Task Force; 26-79 MGD of water savings by 2012. The hypothetical, middle scenario shows what one could achieve if one were to increase marginal water prices on discretionary outdoor use (above 14,000 gallons per month) to existing city of Atlanta levels. While the estimated water savings would increase, it would still not be enough to close the gap. On the right is another hypothetical scenario, representing savings if residential watering bans were enacted. Even under this mandatory conservation scenario, the

realized savings would not be sufficient to address the shortfall. Moreover, even if conservation options could offset the shortfall in totals, actual conservation savings tend to be diffused across the entire metro region. So, even that amount of conservation would not guarantee that shortfalls in critically affected areas could be met. It is clear, however, that conservation efforts across all counties of the metro region are critical to establish an overall culture of conservation, to demonstrate good stewardship of a limited resource, and to benefit downstream users.

As stated in the introduction, conservation savings evaluated by the Task Force should be considered as incremental to existing plans. Incremental conservation savings are somewhat limited because of the degree of progress the Metro District has made and continue to make. As shown in Figure 3, Metro Atlanta (the 15-county area) has decreased per-capita usage 13 gallons/capita/day (or 8%) between 2003 and 2006, to a level below that of many other metro areas.

Figure 3: Overall District water usage levels



Considering the cost-effective and environmentally friendly nature of conservation options, the real choice with conservation is not whether to include it in the solution, but rather, by what means to implement it, namely via incentives or via mandates. For example, consumers might be provided with tax incentives to replace their high flow toilets, or the state might mandate that all high flow toilets in the Metro Water District are to be replaced in two years. Overall, an estimated additional 26 MGD can be saved by 2012 through incentives-based conservation.

In comparison, an additional 36MGD can be saved by pursuing mandated programs. There are two key reasons for mandated programs having a higher yield. First, the estimated yield for incentive-based conservation programs, as evaluated by the Task Force, does not include what is already outlined in existing water plans. Key incentive-based conservation programs such as toilet retrofits,

showerheads and faucets, multi-family sub-metering etc. have already been set into motion by the Metro Water Plan, thereby decreasing the size of the incremental opportunity. Second, significantly higher market penetrations for conservation programs are likely to be achieved only through mandates. For example, in case of multi-family sub-metering, a mandate is the only means to ensure that 100% of multi-family buildings in the area opt for sub-meters; an incentive based approach would generate lower levels of adoption. Figure 4 lists the conservation options available through conservation 2012, under an incentive based approach. Detailed descriptions of these conservation options considered may be found in Appendix III. (Note: based on their estimated cost efficiencies, grey water reuse and pipeline replacement options, with cost efficiencies in excess of \$15,000/MG, were not included 2012 solution portfolio).

In addition, an effective and robust set of education and public outreach programs are essential to fully realize the potential water savings through conservation. A key requirement for a public education and awareness program is sufficient funding. The estimated cost of public education is approximately \$1 per person, or ~\$4 million for the Metro Atlanta District in a 3-year effort to reach the entire population. Even with this additional \$4 million expenditure on education, which is equivalent to additional cost over and above the cost of conservation programs, of \$50-\$100/MG water saved, they are still highly cost effective.

Figure 4: Options available by 2012

Option	Cost Efficiency (\$/MG)	Capital Cost (\$M)	Yield (MGD)
Water restrictions (no daytime watering)	10	0	5
Rain sensors (retrofit 25% existing systems)	60	6	5
Spray rinse valves (rebate program)	115	1	0.7
Conservation pricing	125	14	6
Multi family sub-metering (retrofit 50% existing homes)	165	6	2
Cooling towers (rebate program)	170	6	3
Showerheads and faucets (increased rebate program)	300	8	3
Toilet retrofits (increased rebate program)	375	25	2
Residential clothes washers	1,050	14	0.2
Leak abatement	1,200	17	9
	Wtd. Avg. ~410	~100	~35

Source: Technical Advisory Panel estimates
Note: Expected 2012 yield shown for conservation options

4.2 2015 contingency portfolio

The potential water shortfall in 2015 arising from Judge Magnuson's ruling could be addressed only by a contingency solution that supplies water at an incremental average cost of approximately \$890/MG. The options that would constitute this relatively expensive solution are shown in Figure 5. This contingency portfolio would consist primarily of isolated groundwater systems and a large relatively expensive, indirect potable reuse project. As previously noted, the indirect potable reuse option drives the majority of the cost of the 2015 portfolio, and there is little flexibility in the 2015 contingency portfolio solution, since indirect potable reuse is the only significant option that is available in this timeframe. It is important to note that indirect potable reuse would not be part of the lowest cost 2020 portfolio, if the Metro water district had more time to respond.

Figure 5: Options in 2015 contingency portfolio

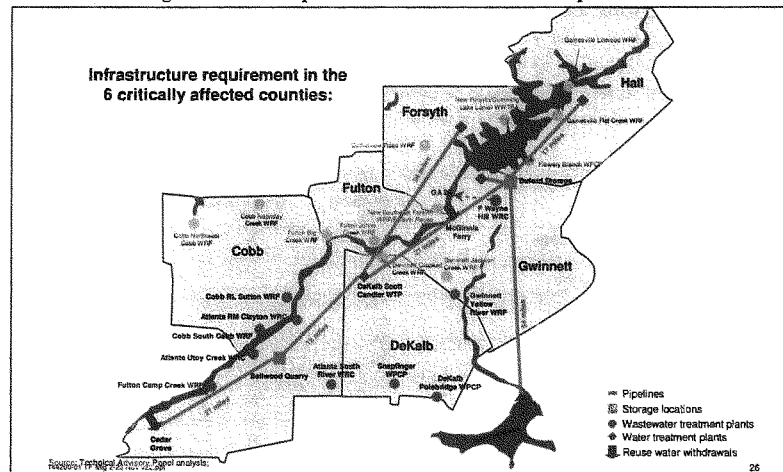
Option	Cost Efficiency (\$/MG)	Capital Cost (\$M)	Yield (MGD)
Water restrictions (no daytime watering)	10	0	6
Rain sensors (retrofit 25% existing systems)	60	6	4
Spray rinse valves (rebate program)	115	1	0.5
Conservation pricing	125	14	6
GW for non-potable use	155	8	15
Multi family sub-metering (retrofit 50% existing homes)	165	6	2
Cooling towers (rebate program)	170	6	3
Lawrenceville GW system	300	5	6
Showerheads and faucets (increased rebate program)	300	8	2
Spalding county GW system	325	7	6
Bartow county GW system	345	11	7
Suwanee GW system	375	10	5
Palmetto GW system	375	3	2
Toilet retrofits (increased rebate program)	375	25	2
Lawrenceville ASR	900	19	4
Small Quarry	1,010	95	8
Residential clothes washers	1,050	14	0.4
Indirect potable reuse (6 county)	1,070	2,800	252
	Wtd. Avg. ~890	~3,060	~340

Source: Technical Advisor Panel estimates
Note: Expected 2015 yield shown for conservation options

But because the indirect potable reuse option is central to the 2015 portfolio, it is worth denoting exactly what this option entails. Indirect potable reuse recaptures wastewater that has been diluted with natural water from rivers and lakes, to provide water for drinking purposes. It is currently practiced in the Metro District in both planned and incidental forms. But the 2015 solution would rely on a dramatic expansion of this option by building an extensive network of pipes, and pumping the water to upstream communities critically affected by the ruling. The map in Figure 6 provides an overview of the pipe and pump infrastructure required to implement this indirect potable reuse option. There would be three water intake points where wastewater that would have been mixed with natural water would be withdrawn: Cedar Grove, Lake Jackson, and McGinnis Ferry. Cedar Grove – the major water intake location – would be chosen 5 miles downstream of the further downstream wastewater discharge location to allow for sufficient contact with natural water and thus ensure

sufficiently high wastewater quality. The pipes help deliver the pumped water back upstream to the critically affected communities, where this water would enter existing water treatment facilities to replenish the drinking water supply. These pipes across the various counties drive the high cost of this option.

Figure 6: Indirect potable reuse infrastructure requirement



The Indirect Potable Reuse project would also raise a number of concerns about implementation feasibility. First, there would be risks concerning implementation timing, due to the need for extensive technical design, permitting, processes of obtaining easements, and other factors. While this option could possibly be implemented by 2015, any delay in these activities could jeopardize the ability to implement this solution in a timely manner. Second, there would be significant funding challenges to be addressed. The solution would have a high upfront capital need of approximately \$2.8 billion, and would include multiple entities in the Metro Water District. It would also be a challenge to specify the necessary contracts and to establish a suitable governance structure to manage the project. The option would also have the potential for significant environmental impact, such as change in water quality levels and temperatures, which could necessitate additional mitigation costs. Further, there would be questions about the degree to which consumers would embrace the concept of reusing water for potable purposes. Clearly, there would be significant non-financial considerations to be taken into account if this option were to be implemented.

4.3 Recommended 2020 portfolio of options

If required, the Task Force recommends a portfolio of options to address the water shortfall by 2020. This portfolio would better balance cost-effectiveness and feasibility considerations than the 2015

portfolio. The primary difference between this portfolio and the 2015 contingency portfolio would be the expansion of four existing reservoirs (Tusahaw Creek, Dog River, Big Haynes Creek, and Etowah River Dam 1) and development of one new reservoir (Richland Creek). These more cost effective options would take the place of the indirect potable reuse project. Figure 7 summarizes the options that would comprise this portfolio, along with their associated cost and yield estimates.

Figure 7: Options in recommended 2020 portfolio

Option	Cost efficiency (\$/MG)	Capital cost (\$M)	Yield (MGD)
Water restrictions (no daytime watering)	10	0	7
Rain sensors (retrofit 50% existing systems)	70	6	8
Spray rinse valves (direct install program)	110	1	2
Conservation pricing	125	14	6
GVV for non-potable use (parks, golf courses, etc)	155	8	15
Multi family sub-metering (retrofit 100% existing units)	170	6	3
Cooling towers (required standards)	170	6	5
Tusahaw Creek reservoir expansion	260	64	20
Lawrenceville GW system	300	5	8
Dog river reservoir expansion	300	230	48
Showerheads and faucets (direct install program)	250	8	10
Spalding county GW system	325	7	6
Bartow county GW system	345	11	7
Suwanee GW system	375	10	5
Palmetto GW system	375	3	2
Toilet retrofits (direct install program)	360	25	15
Big Haynes Creek reservoir expansion	390	270	47
Richland creek reservoir (larger)	580	620	80
Etowah River Dam No. 1 reservoir expansion	615	350	41
Leak abatement	1,200	17	27
	Wtd. Avg. ~460	~1,660	~360

Note: Expected 2020 yield is shown for conservation options
Source: Technical Advisory Panel estimates

The recommended 2020 portfolio would feature aggressive implementation of retrofit and efficiency programs. Specifically, toilet retrofits, showerhead and faucet retrofits, multi-family sub-metering, and spray rinse valve retrofits would be included, and implemented through a direct installation program, rather than relying solely on incentives to encourage adoption. Rain sensor and cooling tower programs would be included under a more aggressive, but incentive-based implementation approach. The 2020 portfolio would also include critical reservoir expansion options (~156 MGD), based on their relatively higher cost-efficiency and relatively lower environmental impact concerns (as compared to new reservoirs).

The Task Force believes that an incentive-based conservations approach could be readily implemented, independent of the potential impact of Judge Magnuson's ruling. And the Task Force would endorse a mandate-based approach only as a contingency solution. More detail regarding Task Force deliberations on these options can be found in Section 6.1.

Note that no interbasin transfer options are recommended as part of the 2020 contingency portfolio. This is primarily a result of their high relative cost, as well as due to Task Force member input on

preferred solutions, and an assessment of implementation feasibility. Their non-inclusion does not imply that transfers are never warranted, or that a transfer option could not address a different situation. But, for purposes of the 2020 portfolio, based on both cost efficiency and feasibility, there were superior alternatives to interbasin transfers. It is also possible that some other future transfer options, not explicitly evaluated by the Task Force (e.g., sale of surplus water), may prove cost-effective and worthy of consideration.

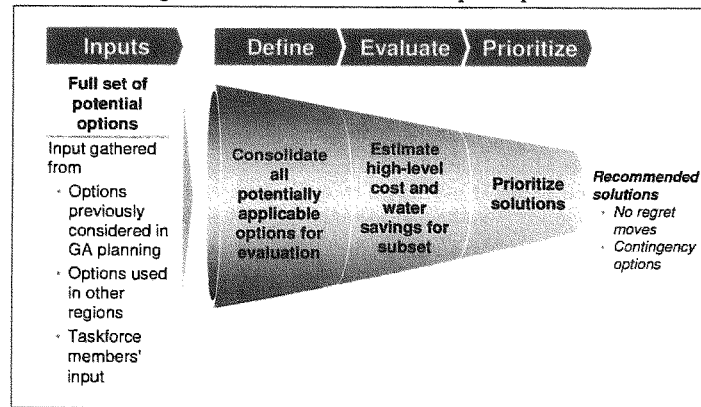
5 METHODOLOGY

The Task Force employed a systematic option prioritization process in order to develop the recommended contingency solutions. This enabled an initial, broad assessment of many options, followed by increasingly detailed evaluation of a subset of preferred options. Through this process, key options and potential solution portfolios were first identified. Task Force member input was collected through specific surveys, to gauge support for alternative portfolios and to converge on recommended solutions. This section describes the methodology relied upon to generate the 'primary' and 'alternative' 2020 solutions. The following section describes the feedback received from the Task Force on principles, and on portfolios and options, and the implications for the 2020 contingency solution recommended.

5.1 Task Force solution development process

The Task Force followed a three step process to define, evaluate, and prioritize options, as shown in Figure 8.

Figure 8: Task Force solution development process



In the first step, the full set of potential options were defined from existing water plans, options considered by other regions, input from Task Force members, technical advisors, and various groups. The Task Force considered these options in three broad categories. The first was existing programs or options that could be more quickly or broadly implemented. For example, this could mean phasing out high-flush toilets in the Metro Area within the next 5 years, instead of according to a 10-year plan. The second broad category was previously-identified but not implemented options. These ideas may have been passed over for implementation previously because they were not necessary, though they could potentially be valid in the context of Judge Magnuson's ruling and its consequences (e.g., options deemed to be too costly before could prove to be cost-effective under assumptions that reflect the impact of the ruling). The third broad category was new ideas that were not previously assessed. These ideas were sourced from best practices followed by other regions' and input from the Task Force members. Examples of such ideas include use of non-potable ground water for outdoor watering in select location and desalination.

In the second step these options were evaluated. This involved making estimates of high-level costs and yields for a subset of these options. Because the scope and compressed timeline of the Task Force effort, it is important to recognize that these estimates of cost and yield include a range of uncertainty. A precise assessment would have required many months of detailed technical design, and hydrology studies that were outside the Task Force scope. However, the estimates are comparable across options, are based upon the use of common estimation methodologies and standard input assumptions, where appropriate, across options. For example, all options employed standard methodologies for reservoir yield determinations, water transport costs and treatment costs (refer to Appendix IV for details).

For all options, initial capital costs (construction, installation, program rollout, etc) and ongoing operating expenses were estimated. Where possible, capital and operating costs were defined per 'phase' or 'process'- for example, for Aquifer Storage and Recovery (ASR) options, costs were estimated for initial treatment, injection, extraction, and re-treatment phases. Cost scale factors were applied where appropriate, (eg, water treatment, pipeline costs) to adjust unit costs for option size. Project lifetimes were assumed based upon the duration of the option (generally 50-year lifetimes were assumed) and total costs over project lifetimes were summed in 2010 dollar terms (ie, present value). These total costs were applied against total expected lifetime yields (in Average Annual Day terms- AAD) to obtain the \$/MG cost efficiency metric. This cost metric enables comparison across different types of options, with different cost profiles (upfront capital cost loaded versus steady operating costs every year)

Figure 9 provides a summary of the key feasibility considerations used to evaluate options (details on how each option fares against these criteria can be found in the Appendix III.) Additionally, options were also classified as "no regrets" (i.e., pursue irrespective of the ruling) or "contingency options" (i.e., those to pursue only if the judge's ruling were to take effect), based on Task Force member survey input. Details on these options are presented in Section 6.2.

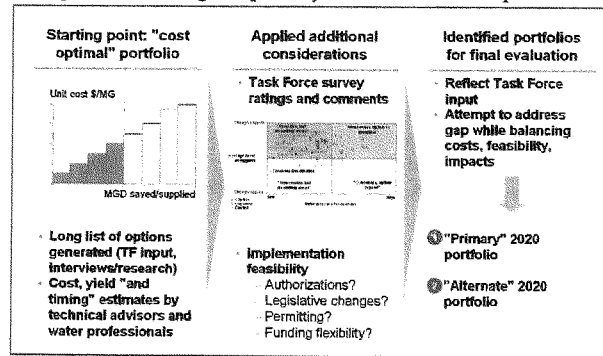
Figure 9: Options key feasibility considerations

		Significance
Political	<ul style="list-style-type: none"> • Authorization required • Legislative change required 	<ul style="list-style-type: none"> • Precede any permitting or construction • Outcome highly uncertain
Operational	<ul style="list-style-type: none"> • Permitting required • EIS required • Right-of-way required 	<ul style="list-style-type: none"> • Precede construction work • Outcome not certain- final option cost could vary based on ability to mitigate impacts, obtain easements
Financial	<ul style="list-style-type: none"> • Possible funding sources • Joint & severable liability clause required 	<ul style="list-style-type: none"> • Some options qualify for advantageous forms of funding (eg. Federal SRF "Green Project Reserve") • Options involving multiple counties/require shared liability; more difficult to contract

5.2 Primary' and 'Alternate' 2020 portfolios

The Task Force also relied on a similar prioritization process, which as depicted in Figure 10, to identify 'Primary' and 'Alternate' portfolios. This practically pertains only to the 2020 contingency solution, as there were not multiple viable options to address the water shortfall prior to this. By 2020, however, there should be a broad set of potential contingency options available, requiring prioritization of specific options. The Task Force believed it was important to consider various 2020 alternatives, in part because of key uncertainties in terms of implementation feasibility.

Figure 10: Defining the 'primary' and 'alternate' 2020 portfolios



The starting point for these alternatives was the 2020 lowest cost option portfolio. This portfolio was determined by a simple ranking of the cost efficiency of all options evaluated (See Figure 11). Cost, yield, and timing estimates were generated by technical advisors and validated with local water professionals. The lowest cost options that filled the gap were selected in sequence. Note that this portfolio contains the Lake Burton interbasin transfer option, based on its estimated cost efficiency.

Figure 11: Options in the lowest cost 2020 portfolio

Option	Cost Efficiency (\$/MG)	Capital Cost (\$M)	Yield (MGD)
Water restrictions (no daytime watering)	10	0	7
Rain sensors (retrofit 25% existing systems)	60	6	3
Spray rinse valves (rebate program)	115	1	0.3
Conservation pricing	125	14	6
GW for non-potable use	155	8	15
Multi family sub-metering (retrofit 50% existing homes)	165	6	2
Cooling towers (rebate program)	170	6	3
Tusculum Creek reservoir expansion	260	64	20
Lawrenceville GW system	300	5	6
Dog river reservoir expansion	300	230	48
Showerheads and faucets (increased rebate program)	300	8	1
Spalding county GW system	325	7	6
Bartow county GW system	345	11	7
Suwanee GW system	375	10	5
Palmetto GW system	375	3	2
Toilet retrofits (increased rebate program)	375	25	1
Big Haynes Creek reservoir expansion	390	270	47
Lake Burton transfer	417	362	50
New reservoir NW of Forsyth	510	660	88
Richland creek reservoir (larger)	560	620	80
	Wtd. Avg. ~410	~2,300	~400

Note: Expected 2020 yield is shown for conservation options
Source: Technical Advisor Panel estimates

At this point in the process, Task Force members were asked to provide ratings through a survey (described in Section 6), and to summarize implementation feasibility considerations (as described in Figure 9), and to apply them to these options. Task Force members were asked their level of support (through a 5- point scale) for the options, as well as whether they would continue to support the option even in the event Lake Lanier were reauthorized.

Two resulting portfolios emerged from these qualitative considerations, termed 'primary' and 'alternate' 2020 portfolios. These alternatives differ primarily on the mode of conservation (i.e. the desired extent of incentive-driven options vs. mandates), and the mix of reservoir expansions vs. new builds. The recommended 2020 portfolio of options was then designed based on Task Force feedback on these 'primary' and 'alternate' portfolios.

The set of options that make up the primary 2020 portfolio are shown in Figure 12. There are two key changes relative to the lowest cost portfolio of options: First, the Lake Burton interbasin transfer option was removed as it was deemed to pose significant implementation challenges. Second, a leak abatement option was included despite its high cost, as it received very high support from Task Force members. As a result of these changes, the 'primary' portfolio which the Task Force recommends

would address the 2020 water shortfall at an average unit cost of approximately \$470/MG, with an upfront capital requirement of around \$2 billion.

Figure 12: Options in the 'primary' 2020 portfolio

Option	Cost efficiency (\$/MG)	Capital cost (\$M)	Yield (MGD)
Water restrictions (no daytime watering)	10	0	7
Rain sensors (retrofit 25% existing systems)	60	6	3
Spray rinse valves (rebate program)	115	1	0.3
Conservation pricing	125	14	6
GW for non-potable use (parks, golf courses, etc)	155	8	15
Multi family sub-metering (retrofit 50% existing homes)	165	6	2
Cooling towers (rebate program)	170	6	3
Tussock Creek reservoir expansion	280	64	20
Lawrenceville GW system	300	5	6
Dog river reservoir expansion	300	230	48
Showerheads and faucets (increased rebate program)	300	8	1
Spalding county GW system	325	7	6
Bartow county GW system	345	11	7
Suwanee GW system	375	10	5
Palmetto GW system	375	3	2
Toilet retrofits (increased rebate program)	375	25	1
Big Haynes Creek reservoir expansion	390	270	47
New reservoir NW of Forsyth	510	660	88
Richland creek reservoir (larger)	580	620	80
Leak abatement	1,200	17	27
	Wtd. Avg. ~470	~1,970	~370

Note: Expected 2020 yield is shown for conservation options.
Source: Technical Advisor Panel estimates.

The logic underlying 'alternate' portfolio, shown in Figure 13, would be to further enhance implementation feasibility and minimize environmental impact. Specifically, the portfolio would achieve this by incorporating more aggressive (mandated) retrofit programs (~28 MGD incremental yield) and increased incentives for rain sensor retrofits (3 MGD) and by prioritizing reservoir expansions over new reservoirs. Thus, the option of building a new reservoir NW of Forsyth would be excluded in favor of the Etowah River Dam No. 1 expansion project. The resulting cost-efficiency of this portfolio would be approximately \$460/MG. This portfolio would marginally more cost-efficient than the 'primary' portfolio, because the more aggressive conservation options are more cost-effective relative to capture options, and provide greater yield.

Figure 13: Options in the 'alternate' 2020 portfolio and comparison with primary

Option	Cost efficiency (\$/MG)	Capital cost (\$M)	Yield (MGD)
Water restrictions (no daytime watering)	10	0	7
Rain sensors (retrofit 50% existing systems)	70	6	6
Spray rinse valves (direct install program)	110	1	2
Conservation pricing	125	14	6
GW for non-potable use (parks, golf courses, etc)	155	8	15
Multi family sub-metering (retrofit 100% existing units)	170	6	3
Cooling towers (required standards)	170	6	5
Tussock Creek reservoir expansion	260	64	20
Lawrenceville GW system	300	5	6
Dog river reservoir expansion	300	230	48
Showerheads and faucets (direct install program)	250	8	10
Spalding county GW system	325	7	6
Bartow county GW system	345	11	7
Suwanee GW system	375	10	5
Palmetto GW system	375	3	2
Toilet retrofits (direct install program)	350	25	15
Big Haynes Creek reservoir expansion	390	270	47
Richland creek reservoir (larger)	580	620	80
Etowah River Dam No. 1 reservoir expansion	615	350	41
Leak abatement	1,200	17	27
Wtd. Avg. -460		-1,660	-360

Note: Expected 2020 yield is shown for conservation options
Source: Technical Advisor Panel estimates

Primary 2020 Portfolio				Alternate 2020 portfolio			
Option	Cost efficiency (\$/MG)	Capital cost (\$M)	Yield (MGD)	Option	Cost efficiency (\$/MG)	Capital cost (\$M)	Yield (MGD)
Water restrictions (no daytime watering)	10	0	7	Water restrictions (no daytime watering)	10	0	7
Rain sensors (retrofit 25% existing systems)	60	6	3	Rain sensors (retrofit 50% existing systems)	70	6	6
Spray rinse valves (rebate program)	115	1	0.3	Spray rinse valves (direct install program)	110	1	2
Conservation pricing	125	14	6	Conservation pricing	125	14	6
GW for non-potable use (parks, golf courses, etc)	155	8	15	GW for non-potable use (parks, golf courses, etc)	155	8	15
Multi family sub-metering (retrofit 50% existing homes)	165	6	2	Multi family sub-metering (retrofit 100% existing units)	170	6	3
Cooling towers (rebate program)	170	6	3	Cooling towers (required standards)	170	6	5
Tussock Creek reservoir expansion	260	64	20	Tussock Creek reservoir expansion	260	64	20
Lawrenceville GW system	300	5	6	Lawrenceville GW system	300	5	6
Dog river reservoir expansion	300	230	48	Dog river reservoir expansion	300	230	48
Showerheads and faucets (increased rebate program)	300	8	1	Showerheads and faucets (direct install program)	250	8	10
Spalding county GW system	325	7	6	Spalding county GW system	325	7	6
Bartow county GW system	345	11	7	Bartow county GW system	345	11	7
Suwanee GW system	375	10	5	Suwanee GW system	375	10	5
Palmetto GW system	375	3	2	Palmetto GW system	375	3	2
Toilet retrofits (increased rebate program)	375	25	1	Toilet retrofits (direct install program)	350	25	15
Big Haynes Creek reservoir expansion	390	270	47	Big Haynes Creek reservoir expansion	390	270	47
New reservoir NW of Forsyth	510	660	88	Etowah River Dam No. 1 expansion	615	350	41
Richland creek reservoir (larger)	580	620	80	Richland creek reservoir (larger)	580	620	80
Leak abatement	1,200	17	27	Leak abatement	1,200	17	27
Wtd. Avg. -470		-1,970	-370	Wtd. Avg. -460		-1,660	-360

Note: Changes from 'primary' to alternate portfolio include:
1. Most aggressive retrofit/efficiency program implementation, and
2. Etowah River Dam 1 expansion instead of New Reservoir - NW of Forsyth.

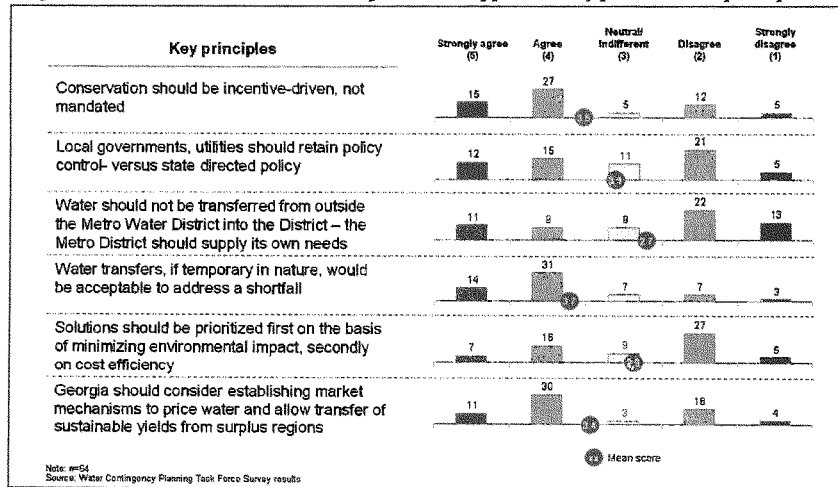
6 SUMMARY OF TASK FORCE FEEDBACK

Feedback was collected from Task Force members throughout the process, on many levels, and it directly informed the development of these recommendations. The following section summarizes Task Force feedback on principles of prioritization, solution portfolios, and individual options.

6.1 Summary of Task Force feedback on principles

Task Force members were surveyed on their level of support for set of principles that could be used for option prioritization, before they were asked about any individual options. This was done to clarify the underlying logic that Task Force members, as individuals and as sub-groups (business, elected officials, conservation, etc) would prefer to be used to evaluate and prioritize solutions. Figure illustrates the of Task Force responses on each principle.

Figure 14: Distribution of Task Force responses on support for key prioritization principles

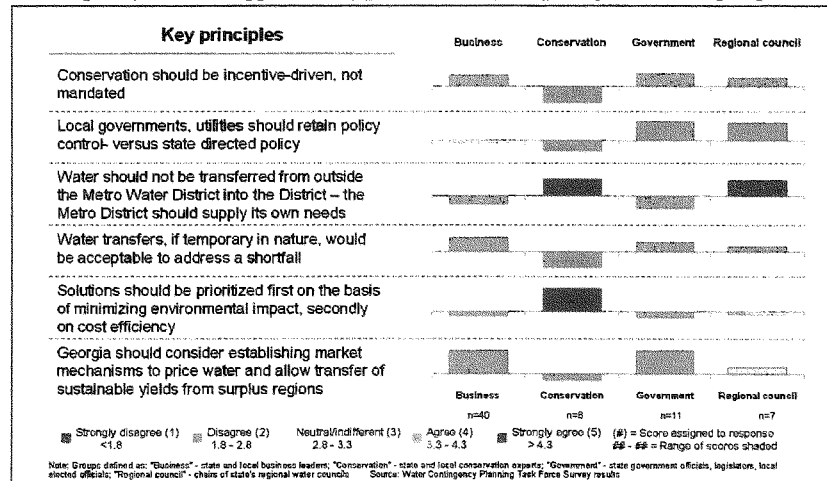


The Task Force was in fairly strong agreement that if given the choice, conservation measures should be implemented via incentives rather than mandates. There was also consensus on the principle that both cost effectiveness and environmental impact should be balanced when arriving at a recommended portfolio of options. Further, to address the immediate shortfall situation, most Task Force members felt that temporary transfers to an affected area would be acceptable. However, temporary transfers only apply to system interconnections, or specific reservoirs which could enable

sharing water from an area which currently has a surplus. Large, infrastructure-intensive interbasin transfers cannot be temporary because they would not be economically feasible. There were, however, several principles on which opinions diverged. For example, there were considerable differences within the Task Force on whether policy control should rest at the local or state level, and whether or not long-term inter-basin transfers should be allowed.

Figure 15 shows a different summary of Task Force feedback on principles. It summarizes the degree to which, Task Force members affiliated with different groups, tended to support the key prioritization principles. In general, there was consensus across most groups, although the conservation group affiliated members often expressed opinions differing from other groups. It is useful to understand the degree of endorsement for various prioritization principles by different groups, as well as the potentially divergent viewpoints that could be encountered about key options, both within the Task Force and more broadly. These viewpoints also underscore the key tradeoffs that should be considered when choosing to implement various options.

Figure 15: Level of support for key prioritization principles by various sub-groups



6.2 'Summary of Task Force feedback on portfolios

Task Force members also provided feedback through additional surveys, on the various portfolios of options previously described. In general, the Task Force indicated high levels of support for both the 'primary' and 'alternate' 2020 portfolios. There was also a consensus among Task Force members that

more could be done via conservation measures, although differences in opinion did emerge over the method of implementation (i.e., incentives versus mandates).

When asked directly to choose one portfolio to endorse as a 2020 contingency solution, Task Force members leaned toward the “alternate” portfolio, with mandated conservation measures, at a slightly higher rate than toward “primary” portfolio (the margin of difference was 4 responses from a total of 58). Additional comments indicate that while almost all Task Force members recognized the need for, and are willing to endorse mandates in a truly “dire” situation, most feel strongly that *initial* implementation should be incentive-based. Furthermore, most Task Force members recognized that an optimal approach includes a blend of mandates and incentives for specific options, rather than an “all or nothing” approach.

When asked about the conditions necessary to secure their endorsement for specific portfolio solution, most Task Force members cited the need for further, detailed analyses of potential impact to downstream resources. Additionally, many encouraged follow-on evaluation of the potential cost-benefit of developing additional reregulation capacity on the Chattahoochee River below Buford Dam (e.g. dredging Morgan Falls reservoir). These items are discussed in more detail in Section 7 of this report.

In terms of the 2015 portfolio of contingency options (dominated by the indirect potable reuse option), Task Force support was very mixed. These options that could potentially address the gap by 2015 were generally viewed as costly and impractical. A comment from one Task Force member summarized the overall thoughts on this potential solution portfolio; “Indirect potable reuse is a very expensive way to do what we’re already doing – drawing water out of the ACF and putting it back after using and treating it”. The Task Force supports this portfolio only as an absolute contingency if required to meet timing constraints.

6.3 ‘No-regret’ and ‘contingency’ options

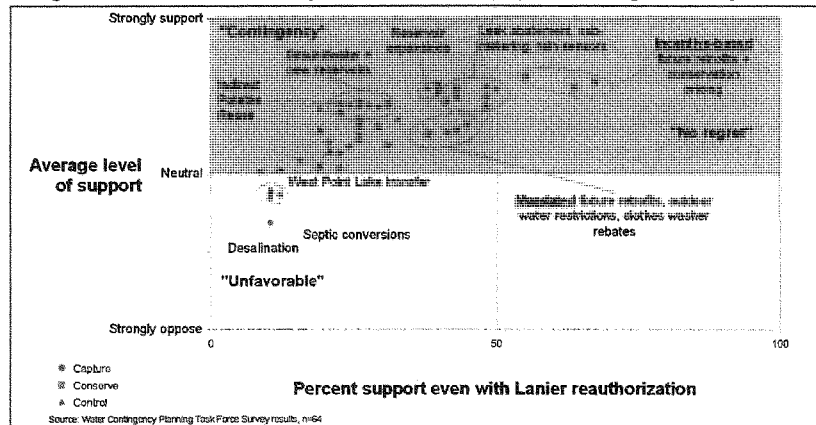
In addition to a survey of Task Force preferences on alternative 2020 portfolios, Task Force members were also surveyed on their views on specific options. As summarized in Section 5.1, the Task Force relied on survey results to identify ‘no-regret’ and ‘contingency’ options. On the chart in Figure 16, each option is plotted based on two attributes: 1) the option’s average level of support (as indicated by respondents’ rating), and 2) the option’s average level of support even assuming Lake Lanier reauthorization (as indicated by the percent of respondents who chose “implement even with Lanier reauthorization” on the survey).

Through this lens, the Task Force identified those options in the upper right portion of the chart as ‘No-regrets’ (i.e. they earn relatively high support and most Task Force members would support them even with reauthorization). Options in the top left quadrant are generally well-supported, but only in

the event that Lake Lanier is not reauthorized. These are classified as 'contingency' options. Any options falling below the horizontal line are generally viewed as unfavorable.

Clearly, incentive-driven conservation measures stand out as 'no-regret' options. These include toilet retrofits, showerhead and faucet retrofits, cooling tower programs, and conservation pricing. Reservoir expansions have the highest support among contingency options, followed by new reservoirs, groundwater systems and, then, indirect Potable Reuse. It is also noteworthy that additional conservation measures, including leak abatement and mandated retrofits, have relatively high support. In the case of leak abatement, the recommended actions on mandatory data collection and reporting and utility plan development were endorsed as 'no-regret' options for immediate consideration.

Figure 16: Assessment of 'no-regret' and 'contingency' options through TF survey results



6.4 Alternative views on key types of options

As one might expect, for many issues there was not complete alignment among Task Force members' views. A key role of the Task Force is to highlight those areas of differences and summarize alternative perspectives for consideration by policy-makers. This section presents alternative viewpoints on the major sub-sets of options. This is a considerably distilled summary. The compendium of Task Force members' comments and submissions is in the Appendix VI.

Conservation efficiency programs:

Conservation efficiency programs include options such as toilet retrofits, showerheads and faucets, outdoor watering restrictions, etc. A full list of conservation efficiency programs evaluated can be found in Appendix III. For these measures, there is a consensus that they should be integral to the overall solution. However, there are diverging viewpoints on whether these options should be implemented via mandates or incentives. As an example, discretionary outdoor water use can be controlled via tiered pricing as a form of incentive, or be completely banned as was done during the drought. Proponents of a mandate-based implementation cite the opportunity to realize higher yields with minimal environmental impact as the key rationale. On the other hand, those supporting an incentive-based implementation place more weight on the higher quality-of-life associated with incentive based solutions.

In addition, some proponents of conservation advocate that all potential demand-management options should be considered before any supply options, including those conservation options with potentially low yields and/or high unit costs. For example, residential greywater recycling could reduce potable water use (20-25 MGD) but it is not included in the recommended portfolio due to its estimated unit cost (~\$15,000/MG). Some Task Force members still feel that this option is worth considering. Further, there are a number of lower yield potential options, (e.g., air-cooled ice-machines, x-ray machine upgrades) which were identified by some Task Force members but not investigated in detail. Other Task Force members cite the need to optimize scarce resources (i.e., funding, enforcement personnel, etc) and therefore suggest pursuing *only* those conservation options with the highest potential return.

Conservation pricing:

There is general support for the conservation pricing option, as being a cost effective and relatively easy to implement conservation measure. However, there are some Task Force concerns around the overall degree of price change that is feasible without severe consumer backlash. Furthermore, some Task Force members point out that any price change would need to preserve the affordability of water for consumers, since it is fundamental to quality of life. There were also some concerns regarding the timeframe for implementation. A significant price increase may need to be implemented over multiple years in small price increments, depending on the appetite that consumers have for price increases in any given year. This could potentially lead to delays in realizing water savings.

Indirect Potable Reuse:

Reactions to the Indirect Potable Reuse option are mixed. On the one hand, some Task Force members believe it is the only available option that can address the shortfall by 2015. Further, some point out that it is currently practiced in the Metro Water District and the proposed option is just an expansion of existing practice. However, there are also substantial concerns among many other Task Force members over the high cost of implementation and implementation feasibility, as discussed in Section 4.2.

Reservoir creation and expansion:

Capture options such as new reservoirs and reservoir expansion receive broad support as contingency options. Those supporting these options tend to argue that they lend themselves to providing long-term water supply stability to the region in addition to resolving contingency issues, which in turn helps economic development. Additionally, most of these options are regarded as relatively cost-effective. There is another school of thought within the Task Forces, however, that these options should only be considered to be “last resort” measures, owing to the associated environmental impact. However, there is general agreement that reservoir expansions would have lower environmental impact, when compared to new reservoir builds. Additionally, there are concerns that reservoirs would adversely impact the amount of water that would be available for downstream communities. At minimum, the Georgia EPD in-stream flow requirements would need to be met by each proposed reservoir option.

Interbasin transfers:

There are substantial differences of views on the long-term interbasin transfer options that were evaluated by the Task Force. Some Task Force members envision a regional water-planning model where water supply would be managed for the entire system as a whole, as opposed to localized regions. Interbasin transfer options become a key ingredient of this vision. Other Task Force members oppose these options, and cite the significant implementation challenges that they pose, such as the need for legislative change, the degree of environmental impact etc. Additionally, interbasin transfers could benefit some users at the expense of others. The specific impact, of course, would depend on the degree of return flows that are mandated under the implementation regime and their precise location.

Those Task Force opinions were also informed by a rich variety of official comment and submissions to the Task Forces, a compendium of all official comments and submissions to the Task Force is available in Appendix VI.

7 TOPICS PENDING FURTHER EVALUATION

There are three main areas where the Task Force felt that additional evaluation and analysis were required to reach conclusions but these analyses were beyond the scope and timeline of the Task Force effort. The first is a more quantitative assessment of the net downstream flow impacts from pursuing sets of contingency options, an issue raised by several Task Force members. The second is a more thorough determination of cost and yield for certain options, where the Task Force’s high-level assessments may not prove adequate and an objective assessment of these topics would require detailed technical analyses that would require significant time. And the third area relates to the suggestions the Task Force received to consider the creation of a regional water authority.

7.1 Determination of downstream flow impact

The set of options evaluated by the Task Force would have varying degree of impact on the amount of water available to downstream users. For example, while conservation programs may have no impact

or even a positive downstream impact, capture measures would result in reduced downstream flow (the degree of reduction is very case specific), and transfer options could benefit a set of downstream users at the expense of others, depending on the specific location and amount of return flows. Given the scope and expedited time from the Task Force effort, only basic steps were taken to account for downstream impact in the option evaluation process. For example, technical advisors incorporated existing standards, such as the Georgia EPD minimum in-stream flow requirement, to ensure that adequate water flow is preserved. Further, the yield and cost estimates for various options included provisions for environmental mitigation.

However, prior to implementing major capture or transfer options it would also be necessary to perform a detailed due-diligence evaluation that takes into account the net impact of implementing multiple options, accounting for all minimum flow requirements, and the impact of Judge Magnuson's ruling on the Corps operating regime. This analysis would need to be done by the relevant Regional Water Planning Council in association with Georgia EPD, prior to implementing any option. Further, applying a standard minimum in-stream flow requirement to all existing reservoirs could change total potential yield available, as well potentially impacting the net downstream flows.

7.2 Additional options requiring more detailed evaluation

In general, an objective assessment of certain options would require detailed technical analyses that would require significant time and were beyond the scope of the Task Force. For example, modeling the hydrology of the Chattahoochee River, downstream of Buford Dam, is essential to assess the net downstream flow impact of implementing options, and to estimate the yield of certain supply options (Morgan Falls dredging, increasing supply through better water treatment standards). In addition, this assessment could require key data that is currently unavailable. For example, the implication of Judge Magnuson's ruling on (a) future Corps operation of the Buford Dam (essential for developing the hydrology model), and (b) permitted river withdrawals for counties downstream of the dam (necessary to assess the potential for transferring surplus water, if available, between counties), was information unavailable to the Task Force.

Morgan Falls Dredging

The Task Force recommends further detailed analysis, beyond the scope of this preliminary study, to determine the potential benefit, and associated cost efficiency, which could be realized by dredging the reservoir behind Morgan Falls Dam (Bull Sluice Lake). Precise levels of possible incremental yield depend largely on a number of factors, including underlying assumptions regarding Corps operating procedures with respect to peak hydropower releases. Initial indications suggest that dredging ~1,000 acre feet of sediment *could potentially* create significant incremental yield, anywhere from 0 to 130 MGD depending on many other factors. Fully understanding the potential benefit of this option, and how it compares to other options evaluated, requires a detailed analysis to include items such as (1) modeling hydrology of the Chattahoochee River below Buford Dam given an understanding of future Corps operating policies, (2) validation or update of historically reported cost estimates, and (3)

determination of expected duration of benefits achieved (i.e. lifetime of option). There are also substantial feasibility challenges and environmental risks that would also need to be addressed before proceeding further.

Increased water treatment levels and potential supply implications

The minimum flow requirement at Peachtree Creek is dictated by a set of constraints such as dissolved oxygen levels. If the binding constraint to the minimum flow requirement is determined, water treatment plants could be upgraded to treat water to a standard that alleviates the constraint, thereby lowering the minimum flow requirement and creating additional supply. The cost associated with the upgrade depends on what constraint is being addressed. In theory, this process can be repeated to alleviate a set of constraints up to the point where cost efficiency no longer available. A detailed evaluation of this option would require a modeling effort by Georgia EPD to simulate the hydrology of the Chattahoochee River below Buford Dam, would be based on assumptions of how the Corps would operate the dam, and would function in existing water treatment standards.

System interconnections/Purchase of surplus water

Surplus water available in counties within and surrounding the Metro Water District could potentially be purchased by counties facing a water shortfall, if system interconnections facilitate the transfer. On the basis of inputs received by the Task Force, it is unclear at this point as to (1) which counties would have surplus water, and (2) how much surplus water would be available in 2012. The availability of surplus water would depend on future growth potential for each county as well as the possible implications of Judge Magnuson's ruling on permitted river withdrawals. Further, this water would likely be available only on the basis of short-term contracts. Additionally, there are challenges in transferring any available surplus water to counties in need. In some instances, the existing infrastructure may be unsuitable for large scale transfer of water. There are also issues relating to water chemistry and water treatment compatibility that might need to be addressed. Even though these options are unlikely to be long-term solutions, however, they could be evaluated further to satisfy short-term needs for water.

Commercial user focused conservation programs

While the many efficiency programs were evaluated for residential users, commercial conservation program potential was not evaluated as fully. The primary limitation is the lack of robust commercial water use data by user and usage categories. This data gap complicates rigorous opportunity sizing. Moreover, given the larger scale of commercial facilities, it is possible that options which appear cost inefficient in residences (eg, greywater reuse) to be viable in some commercial settings. There is potentially an opportunity to validate the cost efficiency of such programs and define targeted incentives.

Likewise, there could potentially be an opportunity to tailor conservation pricing to commercial accounts as a means to motivate conservation and process improvements. One potential concept is 'budget-based' account pricing where marginal rate structures would be tailored to specific commercial accounts, based on account-specific historical usage levels. The latter opportunity could require enhanced water utility billing capabilities, requiring a more informed cost/benefit assessment

Stormwater Reuse

Stormwater reuse refers to the practice of storing stormwater runoff in large surface ponds and subsequently using that as a source of water for non-potable use, typically irrigation. The capture of stormwater was partially addressed through the reservoir pump storage options evaluated by the Task Force. The pump storage options envisioned river water being pumped at high flows (typically during and after storm events) for storage and subsequent use. However, Metro Water District, regional water planning council and/or Georgia EPD could consider conducting a more complete cost/benefit analysis that accounts for the benefits of reducing urban water runoff. Findings from a Stormwater Reuse study commissioned by Texas Water Development Board (<http://www.twdb.state.tx.us/twt/reuse/projects/stormwater.html>; due Dec 09/Jan 10) could potentially be leveraged.

Rainwater Harvesting

Rainwater harvesting involves localized capture and storage of rainwater for irrigation and non-potable indoor uses. Preliminary analysis suggests that residential application of this concept is potentially expensive, with cost efficiency in excess of \$10,000/MG (accounting for upfront installation cost as well as periodic refurbishment and operating cost over a 50 year life; detailed cost and yield assumptions can be found in Appendix III). However, there could be potential to apply this concept at commercial establishments, with more cost effective applications. The cost and yield for commercial use is highly site specific. Metro Water District, Regional Water Planning Councils, and/or Georgia EPD could consider a more detailed analysis that evaluates the true potential for this option, based on the pattern of rainfall in the metro region. The following issues could also be given consideration: (1) minimum water quality guidelines and standards for rainwater use (2) treatment methods for indoor use of rainwater (3) appropriate cross-connection safeguards for indoor use of rainwater in conjunction with existing municipal water supply, and (4) minimum requirements for the option to be a viable alternative. For example, the Texas Water Development Board recommends this option only for facilities with 10,000 square feet or greater in roof area.

7.3 Regional governance model

Third, there was some input to the Task Force suggesting that a feasibility study should be conducted to assess the merits of establishing a Regional Water Entity, which could consolidate some or all service delivery functions of all water utilities in the Metro District. Such an entity could facilitate funding and implementation of regional infrastructure projects, for example. It was also suggested that Regional Water Planning Councils explore the establishment of county consortium to facilitate the sale of surplus water from surface and groundwater resources in their regions. This evaluation was not in the scope of the Task Force effort, since it addresses a broader issue of governance in the context of state wide water planning efforts, and was not directly linked to developing a contingency plan to address potential water shortfall in the region.

8. Conclusion

The key objective for the Task Force was to define a time-driven action plan prioritizing specific options and recommendations for conservation, supply enhancement. To that end, the Task Force is recommending a set of policies for immediate consideration as well as a set of policies and contingency options to be considered only if absolutely essential.

Policies for immediate consideration include three broad areas of additional conservation improvements: Instituting mandatory data collection and reporting of key metrics to inform future planning efforts (eg, utilities would have to conduct standardized water loss audits), adopting higher water efficiency standards and incentive measures to increase conservation effectiveness. (e.g., more aggressive conservation pricing, increased incentives for fixture retrofits.), and linking progress on conservation efforts to funding eligibility, low-interest loan qualifications, and permitting

applications to ensure implementation of measures. These actions help reinforce the culture of conservation in Georgia and would continue the outstanding progress made in the last several years.

Policies for consideration as contingency measures include mandated conservation program (eg, direct install programs for fixture upgrades, time of day watering restrictions, retrofit on resale). The Task Force also identified contingency solutions for 2015 and 2020 timeframes, based upon the expected availability of varying options. A large indirect potable reuse project defines the 2015 contingency solution, whereas the 2020 solution incorporates more cost effective reservoir expansions and while both contingency solutions are capital intensive and pose significant incremental costs, the 2020 solution is roughly half as costly per gallon of yield. Based on this significant cost difference, if a contingency plan is required, the Task Force recommends pursuing the 2020 solution if possible.

Going forward, the contingency plan will be evaluated in context of the Governor's overall 4-prongs strategy to identify whether and when to begin implementation. The near-term policy recommendations should be considered for incorporation into the state's general water management plan.

All Task Force analyses demonstrate clearly that replacing Lake Lanier as a water source would pose significant *incremental* economic burdens and environmental impacts. All else equal, water rates would rise to reflect the higher wholesale cost of water, quality of life would decline thru economic impacts in addition to increased watering restrictions, and new supply sources would pose some environmental impacts on existing ecosystems. In summary, Lake Lanier is clearly the most economically sensible and environmentally friendly water supply source for the metro Atlanta region.

DEFINITION OF KEY TERMS

Conserve: A broad category of options evaluated by the Task Force that aim to reduce water demand by consumers. Examples of conserve options include toilet retrofits, pricing, leak abatement etc. A complete list of conserve options evaluated by the Task Force can be found in Appendix III.

Capture: A broad category of options evaluated by the Task Force that aim to enhance future water supply through new sources or by expanding existing sources. Examples of capture options include new reservoirs, groundwater, Aquifer Storage and Recovery (ASR) etc. A complete list of capture options evaluated by the Task Force can be found in Appendix III.

Control: A broad category of options evaluated by the Task Force that aim to optimize management of supply through policy and/or process changes. A complete list of control options evaluated by the Task Force can be found in Appendix III.

Yield: The amount of water saved (in case of conserve options) or supplied (in case of capture and control options) by an option, expressed in Millions of Gallons per Day (MGD)

Cost Efficiency: The ratio of the Net Present Value (NPV) of all costs associated with an option (expressed in 2010 dollars) to the total yield of the option, across the estimated life of the option. This is expressed in dollars per Million Gallons (\$/MG).

APPENDIX

- I. List of Task Force Members
- II. Fact base: water situation, facts on usage
- III. Complete set of options evaluated with rationale, cost, yield, implementation feasibility
- IV. Technical assumptions used in option evaluation
- V. Task Force member survey results
- VI. Comments and submissions to Task Force



1170 Atlanta Industrial Drive
Marietta, Georgia 30066



40 Courtland Street, NE
Atlanta, Georgia 30303

May 31, 2013

BY ELECTRONIC MAIL AND U.S. MAIL

Colonel Steven J. Roemhildt, Commander
U.S. Army Corps of Engineers, Mobile District
Attn: PD-EI (ACT-DEIS)
P.O. Box 2288
Mobile, AL 36628

Re: Draft Master Water Control Manual Update and Environmental Impact Statement
for the Alabama-Coosa-Tallapoosa River Basin: **Comments of the Cobb
County-Marietta Water Authority and the Atlanta Regional Commission.**

Dear Colonel Roemhildt:

Please accept these comments on the Draft Water Control Manual (the "Manual") and
Draft Environmental Impact Statement (the "EIS") on behalf of the Cobb County-Marietta Water
Authority ("CCMWA") and the Atlanta Regional Commission.

The Water Control Manual Should Address *Future* Water Supply Needs

First, the Draft Manual and EIS should not be limited to "current conditions" in the basin.
At a minimum, the new Manual must address conditions as they will exist during the foreseeable
future while the Manual is in use, including projected water supply demands documented in the
State of Georgia's recent water supply request.¹

We are aware that this limitation on the scope of the Manual is an attempt by the Corps to
honor promises made to the State of Alabama and its Senate delegation, but we urge you to
reconsider nonetheless. The Army should adopt a policy of strict neutrality in this interstate
dispute. When one State wants action and another State wants delay, "neutrality" requires acting
on the merits of any request that is properly before the agency while leaving the States to pursue
their legal and equitable claims in other venues. Any other response puts the Army in the
position of having to adjudicate competing legal claims, which is exactly what is happening in
the ACT. By bowing to Alabama's demand that it take no action to address water supply needs
in Georgia, the Army has, in effect, granted Alabama a victory on claims that would never pass
muster in court.

¹ Letter from Nathan Deal, Gov. of Georgia, to Hon. Jo-Ellen Darcy, Asst. Secretary of the Army
for Civil Works re Lake Allatoona-Request for Final Agency Action (Jan. 24, 2013) with
Affidavit of Judson H. Turner and all attachments.

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Furthermore, if the Army is worried that a comprehensive update to the Manual would interfere with ongoing negotiations between the States, this fear is misplaced. After waiting almost a quarter of a century for the States to negotiate an amicable solution, it is long past time for the Army to conclude that the States are at an impasse and that it has no choice but to exercise its discretion to determine how the system should be operated.

The Description of “Current Conditions” in the Manual is Not Accurate

Second, we are also concerned that description of “current conditions” in the Manual and EIS is not accurate. There is no mention in either document of the existing levels of water supply withdrawals and returns, of the existing demands supplied by CCMWA and the City of Cartersville, or of the existence of the Hickory Log Creek Reservoir. At a minimum, the Manual and EIS must acknowledge these “facts on the ground” and state how they will be addressed when the new Manual is adopted.

1. The CCMWA Contract

The Draft Manual appears to suggest that the “existing condition” as it relates to water supply is a storage contract with a fixed yield of 34.5 mgd. This is how the storage contract with CCMWA is described in the text of the EIS,² and it is also how the withdrawal is modeled in RES-SIM, but it is not correct. To the contrary, as the Corps recently acknowledged, “[t]he contract does not establish fixed limits on withdrawals from the reservoir. Rather, the Contract provides CCMWA the right to utilize 13,140 acre-feet of storage space in the reservoir.” *See* Letter from Col. Steven Roemhildt, USACE, to Glenn Page, CCMWA (Sept. 11, 2012) at 1 (emphasis added).³

In essence, CCMWA has purchased a bucket from the Army, and CCMWA is entitled to store such water in the bucket as may be allocated to it by the State of Georgia. The quantity of water that CCMWA can withdraw from the bucket depends upon (1) the permit issued to it by the State of Georgia; and (2) the availability of water in the bucket. The quantity of water in the bucket at any given point in time depends upon the timing and quantity of inflows in relation to the timing and quantity of withdrawals. It is the function of the storage accounting spreadsheet described in the Appendix to record these variables and to track the balance.⁴

When all of this is taken into account, as it must be, it is unclear whether CCMWA requires additional storage in Allatoona to support its existing water supply operations. The draft documents provide no indication one way or the other.

² The Draft EIS states that the no action alternative, or “baseline,” is “based on the amount of storage currently under contract,” and that it “assume[s] that contract amounts establish limits or caps on the amount of water that can be withdrawn for water supply purposes.” Draft EIS at 1-42.

³ The contract was executed in 1963 and will soon be extended to provide permanent rights to storage in accordance with Pub. L. 88-140. *See* Letter from Col. Steven Roemhildt, USACE, to G. Page, CCMWA (Nov. 20, 2012).

⁴ Draft Manual, Appendix A at 8-5.

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2. Actual Withdrawals and Returns by CCMWA

Although 34.5 mgd is not a meaningful threshold, it should be noted that CCMWA's average annual gross water withdrawal from Allatoona Lake has exceeded that number every year since 2000. The greatest single annual average withdrawal was 50.3 mgd and occurred in 2000. The lowest average withdrawal since 2000 was 34.52 mgd; this occurred in 2012, when plant production capacity was curtailed because of a major construction project.

Approximately one-third of the water withdrawn is returned to the reservoir from two wastewater treatment plants operated by Cobb County, one of the principal wholesale customers of CCMWA. As a result, the average annual net withdrawal by CCMWA has rarely exceeded 34.5 mgd.

3. Existing Demands Supplied by CCMWA

The water withdrawn by CCMWA is currently used to serve existing homes and businesses. Because these customers already exist, some action will have to be taken to meet their needs if withdrawals from Allatoona Lake are curtailed. If the Army is unable or unwilling to do anything, the State of Georgia and CCMWA will have no choice but to respond by building additional storage projects within the ACT basin to fill the gap.

Through an aggressive water conservation program, per capita usage within CCMWA's service area was reduced by more than 20% from 2001 to 2010. Especially with the economy rebounding, further reductions in the gross withdrawal by CCMWA would likely cause severe service limitations and disruptions to CCMWA and its customers.

4. Hickory Log Creek Reservoir

Another current condition of the ACT Basin is the existence of the Hickory Log Creek Reservoir ("HLCR"), a completed reservoir project the Manual and the EIS ignore in the evaluation of alternatives.

HLCR is an off-stream pumped-storage project located on a tributary of the Etowah River upstream of Allatoona. CCMWA partnered with the City of Canton to construct this project, which was completed in 2008 and is expected to yield 44 mgd. Georgia EPD has allocated 3/4 of the total yield (33 mgd) to CCMWA and 1/4 (11 mgd) to Canton.

The project was not designed to have a water treatment plant drawing directly from it. Instead, the concept is to store water in HLCR and to utilize the Etowah River to deliver this water to existing treatment facilities owned by the City of Canton and by CCMWA. Water is piped from storage in HLCR to the Etowah River, where it flows to the existing withdrawal and treatment facilities operated by the City of Canton (in the Etowah River) and CCMWA (in Allatoona Lake). The State of Georgia has approved this concept and has issued a permit stating that water released from storage in HLCR can be used only to provide water supply to Canton and CCMWA customers.

Although the project is fully constructed, the Army has been unable or unwilling to amend its storage accounting spreadsheet to provide a credit to CCMWA for water delivered to Allatoona from HLCR. CCMWA submitted a formal proposal detailing the required changes to

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the storage accounting spreadsheet on August 26, 2010.⁵ The Mobile District informed CCMWA in a letter dated September 11, 2012 that the Assistant Secretary of the Army “intends to address these storage accounting concepts as part of a broader, national review of water supply policies.”⁶ No further action has been taken, however, and there is no indication that the promised review has even commenced.

If the Army refuses to credit CCMWA for water delivered to Allatoona from Hickory Log Creek Reservoir, CCMWA will have no alternative but to construct new facilities to withdraw the water from the Etowah River and pipe it to the existing treatment facilities at Allatoona Lake. The end result will be the same—as CCMWA will remove 33 mgd from the system either way. The only difference between these two scenarios is that CCMWA may be forced to spend substantial sums (approximately \$100 million) to construct a new pumping station and pipeline to replace the natural conduit provided by the Etowah River.

**The Proposed Storage Accounting Spreadsheet
Deprives CCMWA of Water Allocated to it by the State of Georgia.**

The Draft Manual states the following formula will be used to track the balance in each user’s account:

$$\text{Account Balance} = \text{Ending Storage} - \text{Beginning Storage} + \text{Inflow Share} - \text{Loss Share} - \text{User's Usage}.$$

Draft Manual at 7-8 & Appendix A at 8-5.

If implemented, this formula would deprive CCMWA of a state law property right because it denies CCMWA credit for water that has been allocated to it by the State of Georgia—specifically return flows and water delivered to Allatoona from HLCR. It is the State of Georgia, and not the Corps, that has sole jurisdiction to allocate water rights—and the State of Georgia has determined that these flows should be credited to CCMWA. A decision by the Army to reject the State’s allocation of this water to CCMWA would be the same as a bank deciding to credit one user’s deposit to another user’s account.

As explained by the General Counsel of the Army Corps of Engineers in a June 2012 memorandum to the United States Court of Appeals for the Eleventh Circuit, the Army’s general practice has been to treat all inflow the same and to apportion it among users based on the size of each user’s account.⁷ Notwithstanding its protestations to the contrary, the effect of this practice is to equate storage rights with water rights: it assumes that a contract for 75% of the storage in a reservoir also conveys a right to impound 75% of the inflow. As stated above, the State of Georgia has rejected this approach and instead has determined that return flows and deliveries from HLCR should be allocated 100% to CCMWA.

⁵ See Letter from Glenn Page, CCMWA, to Col. Steven Roemhildt, USACE, re Hickory Log Creek Reservoir — Special Condition #15 (Aug. 26, 2010).

⁶ See Letter from Col. Steven Roemhildt, USACE, to Glenn Page (Sept. 11, 2012).

⁷ See Memorandum for the Chief of Engineers dated June 25, 2012 re Authority to Provide Municipal and Industrial Water Supply from Buford Dam /Lake Lanier Project, Georgia at 37.

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To the extent relevant, note that Georgia's allocation of return flows and HLCR deliveries to CCMWA will not have any effect on the yield of Allatoona Lake or its ability to serve other authorized purposes. In the case of return flows, the discharge actually *increases* the yield beyond what the reservoir would naturally produce. The sole effect of the State's allocation is to assign this benefit to the entity responsible for producing it, whereas the effect of the Army's allocation would be to commandeer this additional water to benefit other users. The same is true with respect to HLCR. Because the State has already authorized CCMWA to withdraw 33 mgd, the only question is whether CCMWA can deliver the water to Allatoona Lake or whether it must construct new facilities to withdraw it from the Etowah River. The effect on Allatoona Lake will be the same either way.

The Storage Accounting Spreadsheet Also Includes Technical Errors

In addition to the legal errors described above, the Storage Accounting Spreadsheet also includes serious technical errors that must be fixed. These are outlined below and described more fully in previous correspondence.⁸

1. The Inflow Share Credited to CCMWA Should be 4.61% During the Summer and 13.39% During the Winter.

The concept utilized in the spreadsheet is that inflow should be divided *pro rata* based on the size of each storage account: if CCMWA holds 4.61% of the conservation storage, CCMWA gets 4.61% of the inflow. By this logic, the "Inflow Share" credited to CCMWA and the other water supply users should vary seasonally. Because CCMWA owns 4.61% of the summer pool and 13.39% of the winter pool, the Inflow Share credited to CCMWA should vary from 4.61% in the summer to 13.39% in the winter.⁹ The spreadsheet currently allocates 4.61% to CCMWA at all times.

2. The Storage Accounting Spreadsheet Discriminates Against Water Supply Users by Giving Special Privileges to the Hydropower Account.

Another flaw in the storage accounting spreadsheet is that it does not handle "spill" correctly. Spill occurs when any account is full. Because the balance in each account depends in part on the amount that has been withdrawn, it is possible for one account to be full while others are empty.

There are four storage accounts altogether: the hydropower account and three water supply accounts. When any of the three water supply accounts fills up, the spreadsheet "spills" any addition inflow into the other accounts *pro rata*. The spreadsheet is not consistent, however.

⁸ See Letter from Glenn Page, CCMWA, to Col. Byron Jorns re Cobb County-Marietta Water Contract No. 01-076-CIVENG-64-116 (Nov. 19, 2007) with Exhibits A and B; Letter from Glenn Page, CCMWA to Col. Byron Jorns re Cobb County-Marietta Water Contract No. 01-076-CIVENG-64-116 (Dec. 5, 2007) with Exhibits C through G; and Letter from Glenn Page, CCMWA, to Col. Steven Roemhildt, USACE re letter of Sept. 11, 2012 (Oct. 22, 2012).

⁹ CCMWA's storage account is fixed year-round at 13,140 acre-feet but conservation storage varies from 367,471 acre-feet in summer to 98,100 acre-feet in winter. Draft Manual at 3-3.

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because the spreadsheet never allows the hydropower account to spill into the water supply accounts. Instead of redistributing water to the water supply account when the hydropower account is full, the spreadsheet allows hydropower to keep the surplus. In other words, the spreadsheet discriminates against water supply by capping the water supply accounts but not the hydropower account.

If all accounts were treated the same, as they must be, then the maximum that could be held in the hydropower account in winter (when the total conservation storage is 98,100 acre-feet) is 77,771 acre-feet of storage.¹⁰ Whenever the volume of water in storage exceeds this amount, the excess can only be stored in the water supply accounts. It follows that all accounts must be full whenever Allatoona Lake is at or above its rule curve.

Another way to understand this problem is to observe that, because the sum of all the storage accounts equals total conservation storage, it is physically and mathematically impossible for conservation storage to be full while any storage account is less than full—and yet the spreadsheet allows this to happen.

The “No Action Alternative” Does Not Comply with NEPA

The errors and omissions described above constitute violations of the National Environmental Policy Act (“NEPA”), including the requirement to provide an accurate description of the “no action” alternative. *See* 40 C.F.R. §1502.14. Every EIS “*must* ‘include the alternative of no action.’ ” *N.C. Wildlife Fed’n v. N.C. Dept. of Transp.*, 677 F.3d 596, 602 (4th Cir. 2012). “Without [accurate baseline] data, an agency cannot carefully consider information about significant environment impacts.” *See N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1085 (9th Cir. 2011). This “mak[es] it impossible to accurately isolate and assess environmental impacts” of the proposed action. *N.C. Wildlife Fed’n*, 677 F.3d at 602.

It is especially important to identify the no action alternative here, because in this case the no action alternative may be the most damaging of all. “Where a choice of ‘no action’ by the agency would result in predictable actions by others, this consequence of the ‘no action’ alternative should be included in the analysis.” Council on Env’tl Quality, *Memorandum to Agencies Containing Answers to 40 Most Asked Questions on NEPA Regulations*, 46 Fed. Reg. 18,026, 18,027 (Mar. 17, 1981). In this case, the consequence of a decision by the Corps to take no action to address current and future water supply demands would be to force CCMWA and/or the State of Georgia to address the resulting water supply shortages.

The actual impact will depend in part on whether the Corps intends to curtail existing withdrawals by CCMWA—a point on which neither the Draft Manual nor the Draft EIS is clear. If the Corps does intend to curtail existing withdrawals, this action would have significant and reasonably foreseeable effects. In the short-term, this would likely lead to drastic water shortages in the area served by CCMWA. In addition to the potential public health and safety impacts such a shortage would cause, this would likely lead to a moratorium on all new growth within the area served by CCMWA, and many existing homes and businesses will either be forced to relocate or to do without water. Further, emergency measures would need to be taken by CCMWA, its

¹⁰ The rest belongs to water supply, as follows: 13,140 acre-feet to CCMWA, 6,371 acre-feet to Cartersville, and 818 to Chatsworth. Draft Manual at 7-8.

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customers, and the State of Georgia to create new supplies to replace what is lost in Allatoona, including the construction of new water supply reservoirs. The environmental effects of such a course of action would be far more significant than the effect of allowing current usage to continue. None of these effects are considered in the EIS.

If the Corps' position is that no action will be taken to limit existing usage until final action is taken, the Corps must explain what it meant when it stated in the Draft EIS that "contract amounts establish limits or caps on the amount of water that can be withdrawn for water supply purposes." Draft EIS at 1-42.

If the Corps has not decided whether current withdrawals must be curtailed to comply with the contract, this too must be stated clearly. "Agencies violate NEPA when they fail to disclose that their analysis contains incomplete information." *N.C. Wildlife Fed'n v. N.C. Dept. of Transp.*, 677 F.3d 596, 603 (4th Cir. 2012). See also *N.M. ex rel. Richardson v. Bureau of Land Mgmt.*, 565 F.3d 683, 708 (10th Cir.2009); *Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 964 (9th Cir. 2005); *Sierra Club v. U.S. Army Corps of Eng'rs*, 701 F.2d 1011, 1030 (2d Cir. 1983); *State Farm*, 463 U.S. 29, 43 (1983) (holding that an agency acts arbitrarily and capriciously when it fails to "examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made") (internal quotation marks omitted). Such required "up-front disclosures [include] relevant shortcomings in the data or models." *Lands Council v. Powell*, 395 F.3d 1019, 1032 (9th Cir. 2005); see 40 C.F.R. § 1502.22 (an agency "shall make clear" if there is "incomplete or unavailable information" in an environmental impact statement). Without this information, it is impossible to evaluate the social and environmental impacts of any alternative in comparison to the "no action" alternative.

The Alternatives Analysis Fails to Consider All Reasonable Alternatives to Address Current Water Supply Needs

Consistent with its decision to ignore current conditions relating to water supply, the Draft Manual and EIS also fail to consider reasonable alternatives to address current water supply needs. The alternatives analysis must "rigorously explore and objectively evaluate all reasonable alternatives," including "alternatives not within the jurisdiction of the lead agency," 50 C.F.R. § 1502.14(a), (c).

Reasonable alternatives improperly excluded from analysis include but are not limited to the following: (1) taking action on the storage accounting issues described above to determine exactly how much water CCMWA can withdraw; (2) revising the storage accounting spreadsheet to honor the State's allocation of return flows and deliveries from HLCR to CCMWA; (3) to the extent CCMWA requires additional storage to meet current or future needs, taking action on outstanding reallocation requests by CCMWA and the State of Georgia to provide additional storage; (4) to the extent CCMWA requires additional storage to meet current or future needs, executing interim contracts to cover the need until a final decision is reached. All of these alternatives have been proposed by CCMWA and discussed extensively with the Corps prior to publishing the Draft EIS.

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To the extent these alternatives were excluded “because no conceivable proposal exists that both states would support,”¹¹ this is not a valid justification for ignoring reasonable alternatives. It is wholly improper for the Army to give Alabama the power to veto Georgia’s request.

Furthermore, Congressional authorization would not be required to pursue any of the alternatives noted above. The Corps is fully authorized by the Water Supply Act to allocate additional storage to water supply without further congressional authorization. The only limit on this authority is that the reallocation must not “significantly affect other project purposes” or require “major structural or operational changes.”¹² A reallocation on the small scale needed to meet current and future water supply needs would not exceed these limits.¹³

But even if the Corps were worried that that Congressional authorization might be required for some or all alternatives, this would not justify excluding those alternatives from consideration. CEQ regulations expressly require that all reasonable alternatives be considered, including those not within the jurisdiction of the lead agency. The D.C. Circuit has explained that this duty extends to reasonable alternatives that exceed an agency’s existing authority because an EIS “is not only for the exposition of the thinking of the agency, but also for the guidance of these ultimate decision-makers, and must provide them with the environmental effects of both the proposal and the alternatives, for their consideration along with the various other elements of the public interest.” *Natural Res. Def. Council, Inc. v. Morton*, 458 F.2d 827, 835 (D.C. Cir. 1972). *See also* 46 Fed. Reg. at 18,027 (“An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable. A potential conflict with local or federal law does not necessarily render an alternative unreasonable Alternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA’s goals and policies.”).

The Cumulative Impact Study Fails to Consider All Reasonably Foreseeable Impacts during the Period While the Manual Will Govern Operations

The EIS also fails to address all reasonably foreseeable cumulative impacts of the proposed action. CEQ regulations state that an EIS must consider cumulative impacts on the environment. 40 C.F.R. § 1508.25(a)(1)-(3). *See also Kleppe v. Sierra Club*, 427 U.S. 390, 410 (1976). “A reasonable cumulative impacts analysis must to include” . . . “other actions—past, present, and reasonably foreseeable proposed—that have or are expected to have impacts in the same area”; “the impacts or expected impacts from these actions,” and “the overall impact that can be expected if the individual impacts are allowed to accumulate.” *Ga. River Network v. U.S. Army Corps of Eng’rs*, 334 F. Supp. 2d 1329, (N.D. Ga. 2003) (quoting *Grand Canyon*

¹¹ Draft EIS at 1-7, lines 24-25.

¹² 43 U.S.C. §§ 390b(b), (d).

¹³ The Corps has previously explained the technical and project-specific inquiry that is required to determine whether additional congressional authorization is required. *See* Memorandum for the Chief of Engineers dated June 25, 2012 re Authority to Provide Municipal and Industrial Water Supply from Buford Dam /Lake Lanier Project, Georgia at 46.

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Trust v. F.A.A., 290 F.3d 339, 342 (D.C. Cir. 2002); *see also D'Olive Bay Restoration & Pres. Comm., Inc. v. U.S. Army Corps of Eng'rs*, 513 F. Supp. 2d 1261, 1292-93 (S. D. Ala. 2007).

The cumulative impacts analysis in the EIS is inadequate because it ignores all future developments in the ACT Basin—federal, state, and private. At a minimum, the cumulative impacts analysis must address current conditions as well as reasonably foreseeable future impacts during the life of the Manual, which will remain in effect until it is amended. Given that it has taken almost half a century to update the existing water control plan, and given that no schedule has been adopted to update the WCM to address future conditions, it must be assumed that the WCM will remain in effect for an extended period of time—ten to twenty years at a minimum. All reasonably foreseeable future actions within that timeframe must be considered, including but not limited to the following.

1. Georgia's Water Supply Request

Anticipated growth in water demand on the scale documented in the pending reallocation requests by CCMWA and Georgia must be included. This projected growth is a reality that must be addressed one way or the other in the EIS: either studying the impact of granting the pending reallocation requests and thus meeting the demand or by studying the impact of denying the request and thus forcing homes and businesses to relocate.

2. Hickory Log Creek Reservoir Project

HLCR must also be included. To the extent it is unclear whether the withdrawal will be taken from the Etowah River or from Allatoona Lake, this should be stated, but the authorized withdrawal of 44 mgd (33 mgd by CCMWA; 11 mgd by Canton) should be included in the model because it will be removed from the system either way.

3. Proposed change to Alabama Rule Curve

The new license conditions proposed by Alabama Power Company for its projects on the Coosa and Tallapoosa River must also be included. Among other significant changes, Alabama Power has proposed a significant reduction in seasonal flood storage at these projects. These changes are neither “remote” nor “speculative”; they are included in a license application that has already been approved by FERC staff and declared to be ready for action by the Committee.

Incorporation by Reference of Previous Comments

Finally, we request that the following documents be reconsidered and included in the Administrative Record for this proceeding:

- Letter from Glenn Page, CCMWA, to Col. Byron Jorns re Cobb County-Marietta Water Contract No. 01-076-CIVENG-64-116 (Nov. 19, 2007) with Exhibits A and B;
- Letter from Carol Couch, Georgia EPD, to Col. Byron Jorns re Cobb County-Marietta Water Contract No. 01-076-CIVENG-64-116;

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- Letter from Glenn Page, CCMWA to Col. Byron Jorns re Cobb County-Marietta Water Contract No. 01-076-CIVENG-64-116 (Dec. 5, 2007) with Exhibits C through G.
- Letter from Glenn Page, CCMWA to Col. Byron Jorns re Hickory Log Creek Reservoir (Dec. 20, 2007);
- Letter from Glenn Page, CCMWA, to Col. Steven Roemhildt re Hickory Log Creek Reservoir — Special Condition #15 (Aug. 26, 2010) with Exhibits A through D;
- Letter from Steven Stockton, Dir. of Civil Works, to Glenn Page, CCMWA (Mar. 6, 2012);
- Letter from Col. Roemhildt, USACE, to Glenn Page, CCMWA (May 15, 2012);
- Letter from Glenn Page, CCMWA, to Col. Roemhildt, USACE (June 22, 2012);
- Memorandum for the Chief of Engineers re Authority to Provide Municipal and Industrial Water Supply from the Buford Dam / Lake Lanier Project, Georgia (June 25, 2012);
- Letter from Col. Roemhildt, USACE, to Glenn Page (Sept. 11, 2012);
- Letter from Col. Roemhildt, USACE, to Glenn Page (Sept. 21, 2012);
- Letter from Glenn Page, CCMWA, to Col. Steven Roemhildt, USACE, re letter of Sept. 11, 2012;
- Letter from Glenn Page, CCMWA, to Col. Steven Roemhildt re Conversion of CCMW A Storage Contract (DA-01-076-CIVENG-64-116) to Reflect Permanent Right to Storage and Renewal of Easement (EASEMENT NO. DA-01-076-CIVENG-64-167) (Oct. 22, 2012) with Exhibits A through C;
- Letter from Col. Byron Jorns, USACE, to Glenn Page (Nov. 2, 2007);
- Letter from Steven Roemhildt, USACE, to Glenn Page, CCMWA (Nov. 20, 2012);
- Letter from Steven Roemhildt, USACE, to Glenn Page, CCMWA (Nov. 20, 2012);
- Letter from Nathan Deal, Gov. of Georgia, to Hon. Jo-Ellen Darcy, Asst. Secretary of the Army for Civil Works re Lake Allatoona-Request for Final Agency Action (Jan. 24, 2013) with Affidavit of Judson H. Turner and all attachments.
- Letter from Jo-Ellen Darcy, Asst. Secretary of the Army, to Hon. Nathan Deal, Gov. of Georgia (Apr. 29, 2013).

We have not attached copies of these documents because you should have them already, but please do not hesitate to ask if you cannot locate them.

May 31, 2013
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CONCLUSION

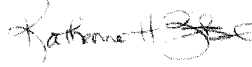
In summary, the storage accounting formula must be fixed to address the legal and technical errors addressed above and the Manual and EIS must be revised to include alternatives to address current and future water supply needs. The Manual and EIS should also be revised to include a cumulative impacts analysis covering reasonably foreseeable impacts within the ACT Basin during the life of the manual.

Please do not hesitate to call if you require any additional information or if we can assist you in anyway.

Respectfully yours,



Glenn M. Page, P.E.
General Manager
Cobb County-Marietta Water Authority



Katherine H. Zitsch, PE, BCEE
Manager, Natural Resources Division
Atlanta Regional Commission

Latest: War Between the States, Georgia Says Tennessee Is All Wet ... <http://online.wsj.com/article/SB100014241278873240007045783884>

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THE A-HED | April 10, 2013, 10:30 p.m. ET

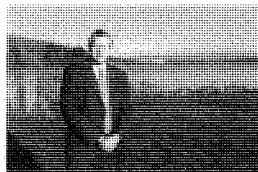
In Latest War Between the States, Georgia Says Tennessee Is All Wet

Wayward Surveyors Blocked River Access; Is Jack Daniel's Whiskey Next on the List?

By CAMERON MCWHIRTER

MARION COUNTY, Tenn.—Brad Carver, a Georgia lobbyist, is thirsting for a small patch of land just north of the line now dividing Georgia from Tennessee.

Two centuries ago, surveyors from Georgia and Tennessee marched through the region's mountains and hollows to mark the official border between the two states. They were supposed to follow the 35th parallel, according to an agreement approved in 1802 by Congress.



Brad Carver on land near the Tennessee river he calls 'occupied Georgia.'

See Related Video on WorldStream

WSJ's McWhirter on the Georgia-Tennessee Border Dispute

Brad Carver Stands in "Occupied Georgia"

Instead, they wandered about a mile south, marking a border that puts the Georgia state line here, just a minute's stroll from the edge of the broad Tennessee River.

That has led to years of water wars between Georgia and Tennessee, as the Peach state's population has exploded, outstripping its water supply—all while the Tennessee River has flowed achingly close.

Now Mr. Carver has floated a resolution in the Georgia state legislature that calls on Tennessee to give Georgia about 1.5 square miles of forest and meadow north of a small country road here called Huckabee Lane—just enough to get a pipe into a wide inlet at a dammed-up part of the river called Nickajack Lake. He says that could easily supply parched Georgians with more than a billion gallons of water a day.

On a recent visit, Mr. Carver, in a gray suit and sunglasses, carefully walked across the soggy, disputed land and stopped at the water's edge.

"We call this occupied Georgia," he said, pointing to the wet earth.

The 41-year-old Mr. Carver, whose clients include the Georgia Association of Realtors, major hospital systems and energy companies, says he feels so strongly about the state's water rights that

he is lobbying on the water issue pro bono for no specific client.



BRAD CARVER

He is proposing what he calls a generous swap. Georgia would give up its long-standing claim to be the rightful owner of about 68 square miles of land and water given to Tennessee when the surveyors mistakenly ambled off the parallel. It includes large parts of the river, several towns and the homes of 30,871 residents, Mr. Carver says.

To make his point, he has handed out white papers on the bungled border, pressed the issue with numerous Georgia politicians and appeared on a History Channel program called "How the States Got Their Shapes," where he hit a golf ball from Huckabee Lane into the Tennessee River to show viewers how close it is.

If the Volunteer state doesn't accept the offer, Georgia will take its case to the U.S. Supreme Court, the arbiter of all state border disputes, says

Mr. Carver.

Tennessee says Georgia's proposal is all wet. "The governor will continue to protect the interests and resources of Tennessee," a spokesman for Republican Tennessee Gov. Bill Haslam said in an email.

Mr. Carver's resolution—the 10th from Georgia since 1887 calling for a change in the border—passed overwhelmingly in both legislative chambers.

His proposal is less bellicose and more modest—yet more desperate—than past claims to the mismarked land. Over the years, resolutions from agitated Georgia legislators have called for the return of all 68 square miles. A resolution in 2008 prompted Ron Littlefield, the mayor of Chattanooga, Tenn., to send a truck of bottled water to the Georgia State Capitol in Atlanta along with a proclamation calling Georgia lawmakers "misguided souls" engaged in "irrational and outrageous actions seeking to move a long established and peaceful boundary."

"It is feared that if today they come for our river, tomorrow they might come for our Jack Daniel's or George Dickel," the proclamation read, referring to Tennessee whiskey.

Georgia legislators see little humor in the situation. When the Georgia senate passed the resolution 48 to 2 on March 25, state Sen. Charlie Bethel, a Republican from north Georgia, sternly condemned Tennessee politicians' "late jocularity on the issue." The resolution directs the state to sue if Tennessee doesn't cooperate.

A spokeswoman for Georgia Gov. Nathan Deal declined to comment on whether he supports the resolution.

Georgia is thirsty despite a rainy winter that has filled reservoirs. Its population has nearly doubled over the past 40 years, and frequent droughts have restricted development and forced residents of Atlanta at times to use dirty water to irrigate their gardens.

Experts on the history of American surveying say many state borders in the Eastern U.S. have quirky twists and turns. Tennessee's borders with Virginia and Kentucky are also off the mark of what was originally approved.

Tennessee's claim that it should continue to control the land stems from "acquiescence," a concept

...atest War Between the States, Georgia Says Tennessee Is All Wet ... <http://online.wsj.com/article/SB100014241278873240007045783884>

in property law that it has the right to keep a boundary if it is not contested over a long period. Mr. Carver and other Georgians insist their state has complained about the border to Tennessee numerous times and therefore never "acquiesced."

It remains to be seen whether Georgia's threat to take the case to the Supreme Court holds water. Any state in a border dispute with another can petition directly to the high court under judicial powers defined in Article III of the Constitution, according to Joseph Zimmerman, a political-science professor at the University at Albany, State University of New York, and the author of several books on interstate disputes.

Mr. Zimmerman said the court almost always takes such cases, and then appoints a special master, usually a retired judge, to review the facts of the case and sometimes make a recommendation to the court.

"This could very well happen, if Georgia wants to push it," he said.

Even if Georgia ever got the boundary moved, it still wouldn't necessarily be able to slake its thirst. The Tennessee Valley Authority, which owns the property in question and manages the river here, would have final say on whether Georgia could pipe out water, according to a spokeswoman.

Buster McCulley's parents are buried in an old cemetery on the land Mr. Carver is proposing to annex from Tennessee. The 82-year-old preacher from Alabama said he didn't think his departed ancestors would mind suddenly becoming Georgians.

"I don't think they'd be much disturbed," he said. "Probably when they started the cemetery they didn't give much thought to what state it was in anyway."

Write to Cameron McWhirter at cameron.mcwhirter@wsj.com

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Average Annual CCMWA Withdrawal

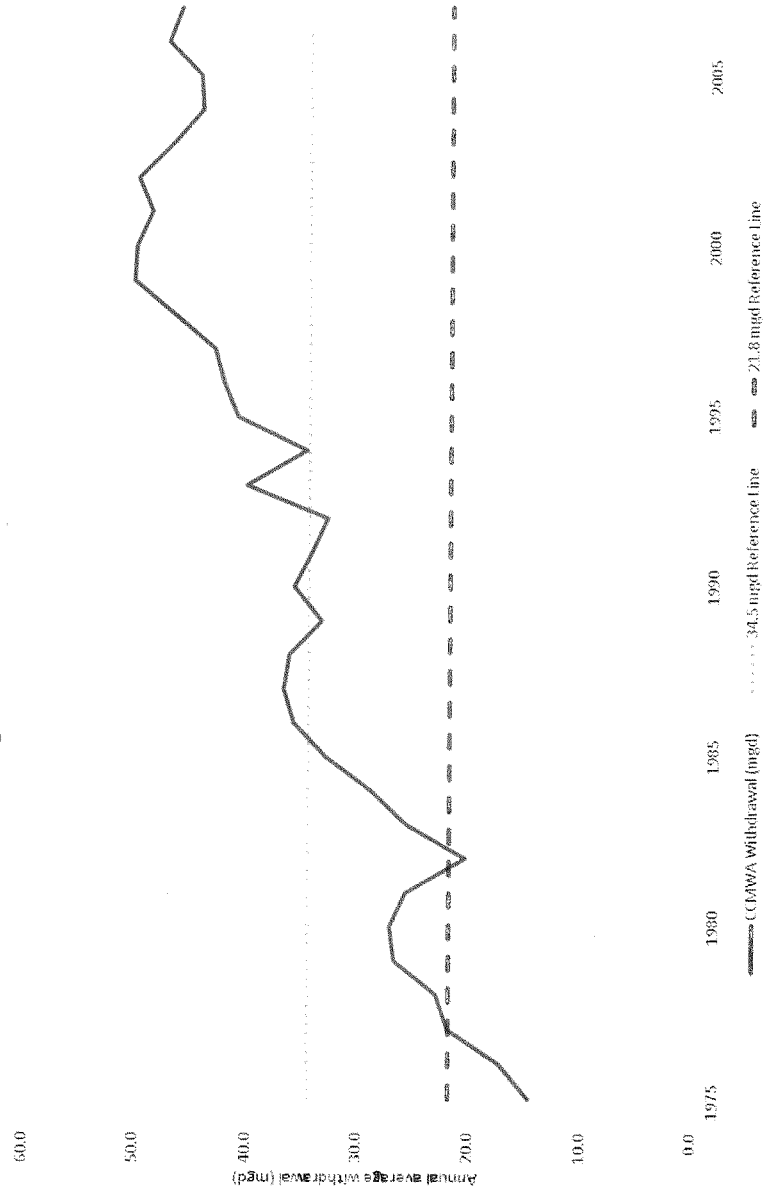


Figure 1. Average Annual CCMWA Withdrawal Amounts

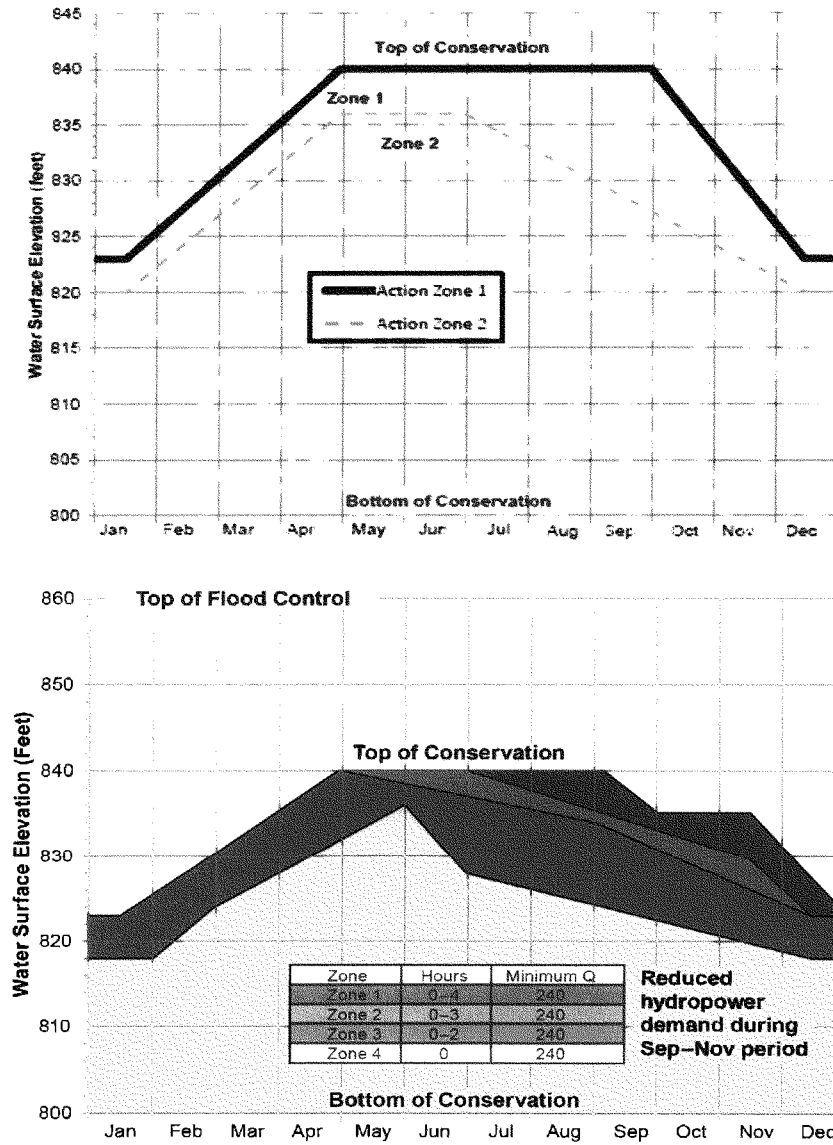
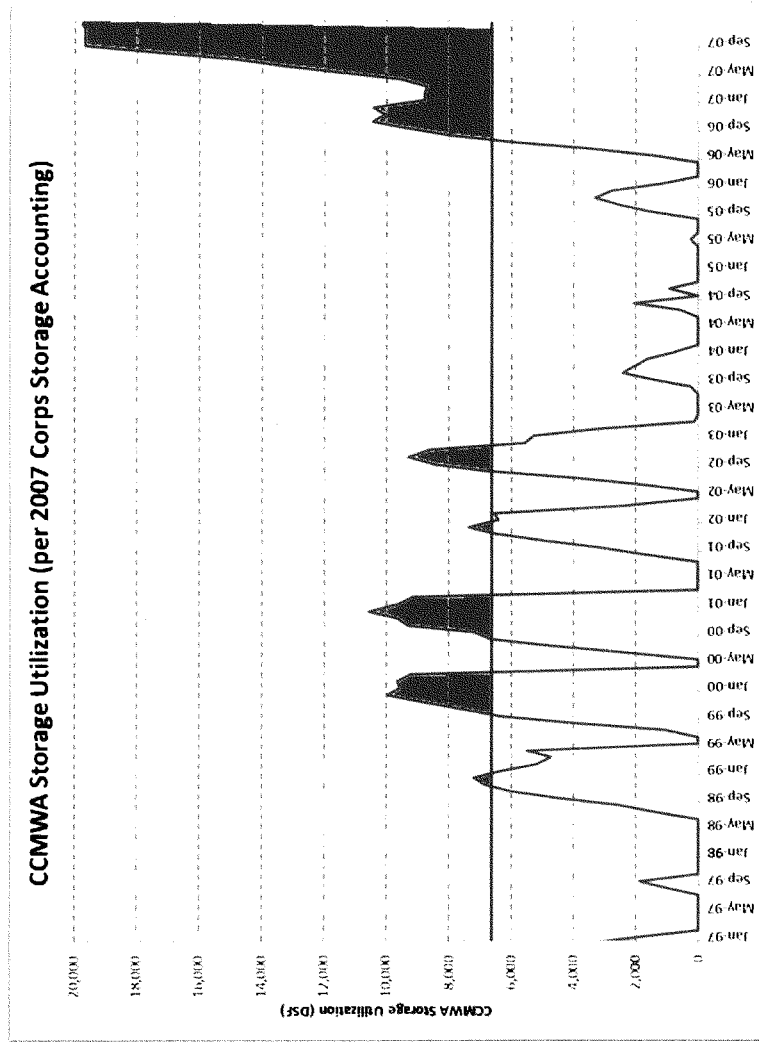


Figure 2. Existing and Modified Rule Curves at Lake Allatoona



CCMWA Storage Utilization from the 2007 Corps Storage Accounting Spreadsheet

The New York Times

June 2, 2013

A Fight Over Water, and to Save a Way of Life

By LIZETTE ALVAREZ

APALACHICOLA, Fla. — If these were ordinary times, Leroy Shiver would be scissoring his heavy tongs along the shallows of Apalachicola Bay and hauling up bushels of oysters for hours on end.

Instead, in a task requiring equal doses of patience and hope, Mr. Shiver shoveled piles of dried oyster shells off his boat into the bay. A long line of oystermen and oysterwomen in boats alongside him also joined in the shell dump, a government-sanctioned, last-ditch attempt to revive the decimated oyster industry in Apalachicola. Under the right circumstances, baby oysters should attach to the shells and grow.

“This bay would be filled with boats,” said Mr. Shiver, 36, whose father and grandfather plunged nets, set traps and dipped tongs into the water along this stretch of the Florida Panhandle. “There used to be oysters everywhere in here, and now there is none.”

In a budding ecological crisis, the oyster population has drastically declined in Apalachicola Bay, one of the country’s major estuaries and the cradle of Florida’s prized oyster industry.

The fishery’s collapse, which began last summer and has stretched into this year, is the most blatant sign yet of the bay’s vulnerability in the face of decades of dwindling flow from two rivers originating in Georgia. For 23 years now, Georgia, Alabama and Florida have waged a classic upstream-downstream water war, with Alabama and Florida coming out on the losing end of a long court battle in 2011.

Oyster overharvesting in the bay after the 2010 BP oil spill in the Gulf of Mexico, which largely missed this area, worsened the situation, as did persistent drought.

But researchers found this year that the lack of fresh water had made it nearly impossible for the bay to bounce back as it typically does after stressful events. Last year, the Apalachicola River reached its lowest level and stayed there for nine months, a record.

While the oysters face the most immediate threat, environmentalists and lawmakers said the diminished flow has other far-reaching consequences on Apalachicola’s \$6.6 million seafood industry. It could affect some of Florida’s most popular catches, including grouper, snapper, blue crab and shrimp, which early on feed and grow in the estuary’s perfectly calibrated mixing bowl of salt water and fresh water.

It could also lead to the demise of one of the state's last fishing villages, an undeveloped, picturesque slice of old Florida on the Gulf Coast fortified by generations of fishermen. The working-class men and women in these parts were born into fishing, the way others are born into farming; it is a job, a mind-set, passed down through generations.

Economically, the situation has become so desperate that Gov. Rick Scott, a conservative Republican who is not inclined to ask for federal help, wrote to the United States Commerce Department last year and asked it to declare the oyster harvesting areas a fishing disaster. No designation has been made yet.

"Our message is that this is worth saving," said Chris Millender, 38, a lifelong oysterman here who helped form the Seafood Management Assistance Resource and Recovery Team to help save the bay. "Once it's gone, it's gone."

Since last year, oystermen have scarcely been able to scrape up several sacks of oysters a day from the bay, a far cry from the 40 they fill in the best of times. The number of adult oysters began to decline in 2007, oystermen said, and has gotten progressively worse. This year, the so-called spat, the larvae of oysters, are struggling to mature.

Under the best circumstances, it would take at least two years for this crop of young oysters to grow large enough for harvest. Typically, the bay here produces 90 percent of Florida's oysters and 10 percent of the country's overall oyster haul.

"The spat is just not where it should be," said Shannon Hartsfield, the president of the Franklin County Seafood Workers Association. "And it all points to the river."

Alarmed, Congressional and state lawmakers from both parties are scrambling to heighten awareness and push for either a legislative solution to control the river flow or a new agreement on water use with Georgia. Considering that the feud between Georgia and Florida has lasted decades, the odds of an agreement are not favorable.

Georgia, where 80 percent of the river basin is, is first in line for the water. Six percent of the basin is in Alabama, and 14 percent is in Florida.

Georgia uses water from Lake Sidney Lanier, a federal reservoir, to quench the thirst and lawns of the residents of ever-expanding metropolitan Atlanta, which sits nearby. Farther south, Georgia farmers use the water to irrigate thousands of acres of agricultural fields. As a result, Georgia has long opposed sending more water downstream to Florida's Apalachicola River.

In 2009, Florida thought it had won the long battle. A senior Federal District Court judge ruled that the Army Corps of Engineers could not draw more water from Lake Lanier. The decision would have freed up more water for Florida.

But in 2011, the United States Court of Appeals for the 11th Circuit, in Atlanta, reversed the ruling. It decided that the corps had the authority to allocate additional water from the reservoir to supply Atlanta. The Supreme Court declined to hear the case.

The appeals court ruling, coupled with the drought, which forced Georgia to draw more water, has starved Apalachicola Bay, scientists and lawmakers said. "These levels are unprecedented," said Dan Tonsmeire, the executive director of Apalachicola Riverkeeper, an environmental group. "The decline in the entire productivity of the bay is not only an ecological disaster but puts the livelihoods of thousands of fishermen at risk of being lost forever. And it's not just Apalachicola Bay. It affects the entire Gulf Coast."

In Congress last month, senators from Alabama and Florida tried to address the flow issue in an amendment to the 2013 Water Resources Development Act. The bill passed the Senate on May 15, but the amendment was blocked by Senator Johnny Isakson, Republican of Georgia, according to Senator Bill Nelson, Democrat of Florida.

"Georgia won't agree," Mr. Nelson said. "They want what they want. We say that's not what Mother Nature intended."

The House has yet to draft its own legislation. The entire Florida delegation sent a letter last month to Representative Bill Shuster, a Pennsylvania Republican and the chairman of the Transportation and Infrastructure Committee, asking him to take up the issue. Governor Scott sent a separate letter to Mr. Shuster.

Representative Steve Southerland II, Republican of Florida, said Mr. Shuster had assured him that a bill would be drafted this year.

For Florida, help cannot come soon enough. The estuary has endured a lifetime of hurricanes and drought. Its fishermen have survived commercial fishing restrictions and inexpensive shrimp imports. But the linchpin remains the flow of fresh water, experts said.

"Whether it's a drought or a hurricane, the river's resurrection depends on the flow of the water coming down," said State Senator Bill Montford, a Democrat who grew up on the Apalachicola River and represents the area. "There is not another place on earth where the blessings of nature come together as they do in the basin and the bay. We have something special there. But it's also a very delicate treasure."

This article has been revised to reflect the following correction:

Correction: June 18, 2013

An article on June 3 about the decline of oyster beds in Florida's Apalachicola Bay, one of the country's major estuaries, described incorrectly the flow of water from a river in Georgia as it heads toward

Alabama and Florida to help create the proper mix of salt and fresh water in the estuary. The flow of water grows stronger as it heads toward Florida; it does not diminish.

